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CONTENTS AND SUBJECT INDEX

Pseudomalignant and Precancerous Lesions of the Cervix. Emil Novak, M.D., Baltimore.....1145

The Use of Staphylococcus Toxoid in the Treatment of Chronic Osteomyelitis. Joseph Buchman, M.D., New York.....1151

Syphilitic and Nonsyphilitic Persons on the Fulton County, Georgia, Relief Rolls. J. G. McDaniel, M.D., Atlanta, Ga.....1156

The Medical Treatment of Ménière's Syndrome. Madelaine R. Brown, M.D., Boston.....1158

Protein, Salt and Fluid Consumption of 1,000 Residents of New York. Benjamin I. Ashe, M.D., and H. O. Mosenthal, M.D., New York..1160

Divinyl Ether: A Report of Its Further Use as a General Anesthetic. I. S. Ravdin, M.D.; E. L. Eliason, M.D.; G. M. Coates, M.D.; T. B. Holloway, M.D.; L. K. Ferguson, M.D; A. B. Gill, M.D., and T. J. Cook, D.D.S., Philadelphia 1163

The Use of Urea in the Treatment of Infected Wounds. Hall G. Holder, M.D., San Diego, Calif., and Eaton M. MacKay, M.D., La Jolla, Calif.....1167

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

Allergy to Dyes. Leo H. Criep, M.D., Pittsburgh.....1169

Laughlen's Test for the Serodiagnosis of Syphilis. F. H. Robinson, M.D., and George M. Stroud, B.S., Durham, N. C.....1170

COUNCIL ON PHYSICAL THERAPY 1170

COUNCIL ON PHARMACY AND CHEMISTRY 1172

EDITORIALS

Spray Residue on Foods.....1178

Syphilis in the Magazines.....1178

Contraceptive Advice, Devices and Preparations Still Contraband.1179

Cooperative Medicine.....1180

CURRENT COMMENT

Poison Gas.....1181

Effect of Garlic on the Flavor and Odor of Milk.....1181

BUREAU OF LEGAL MEDICINE AND LEGISLATION 1211

(Subject Index on next page)

ORGANIZATION SECTION
Facing page 1226

Cooperatives and Medical Service: A Discussion by the Bureau of Medical Economics.....107B

WPA Activities.....110B

Rural Medical Service.....111B

Home of the Association.....112B

Official Notes.....114B

Medical Legislation.....114B

Woman's Auxiliary.....116B

Medical Economic Abstracts...116B

A.M.A. SESSION • ATLANTIC CITY, N. J. • JUNE 7-11, 1937

INJURIES of the KNEE JOINT

The April Number of the Surgical Clinics of North America comes from the hospitals of Chicago. It is a highly practical number—a number that contains a great deal of truly helpful imformation important to the surgeon, family physician and specialist.

For instance, there is the *Symposium on Injuries of the Knee Joint,* a Symposium containing *eight fine clinics* dealing with Semilunar Cartilage Derangements, Congenital Abnormalities of External Semilunar Cartilage, Lateral Ligaments of the Knee, Lesions of Extensor Apparatus of the Knee, Complications Following Injuries or Operations Involving the Knee Joint, Traumatic Arthritis, Lesions of Epiphyseal Cartilages About the Knee, and Rupture of Crucial Ligaments.

But this is not all that you get in the April Surgical Clinics of North America, not by any means. In addition to the Symposium you will find *16 other Clinics*—helpful discussions dealing with diseases and conditions of frequent occurrence. There are clinics on Surgery of the Nasal Accessory Sinuses, Late Hemorrhages of Pregnancy, Irradiation Treatment of Benign Lesions of the Female Pelvis, Ambulant Treatment of Reducible Hernia, Treatment of Phlebitis, Evipal Soluble, Manipulative Treatment of Coccygodynia, and many others of equal importance.

The clinical advice, practical detail, and attention to diseases and conditions of frequent occurrence contained in this April Number are typical features of each and every number of the "Surgical Clinics."

See SAUNDERS ADVERTISEMENT on Page 3

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SUBJECT INDEX TO THIS ISSUE

The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "Ml," Medicolegal; "ME," Medical Economics.

A. M. A. Annual Congress on Medical Education and Licensure....1203
*di*Acetylmorphine (heroin), importation....1190
Acid, acetylsalicylic, hypersensitivity to..C-1197
ash foods, list of....1200
Acne from orthochlorphenol sodium and tetrachlorphenol sodium....ab-1216
Alkaline ash foods, list of....1200
Allen, O. R., fifty years of practice....1185
Anemia, pernicious, spasmodic intestinal complications in....ab-1222
Anesthesia, Evipal Soluble....1172
infection from face mask....1199
*di*vinyl ether....*1163
Appendix, relation to peristalsis of colon...1201
Apples, spray residues on....E-1178
Arsphenamine vesiculobullous dermatitis.ab-1216
Associations: medical associations; contract practice; validity of by-law....Ml-1211
Asthma from metaphen....*1169
treatment, autogenous urinary proteose.ab-1220
Automobile accidents, speed factor in....1183
Birth Control, contraceptives still contraband....E-1179
Blood, acidity (total) and lactic acid in, in infants....ab-1223
circulatory problem: peritonitis....ab-1225
pressure, high, epinephrine in blood in.ab-1225
transfusion of placental and retroplacental blood....ab-1226
Board Examinations....1207
Bone Marrow, panmyelophthisis, myeloid reaction in....ab-1224
Book Notices....1208
Books Received....Adv. Page 30
Breast cancer....1188
gynecomastia....ab-1224
inflammation in boy aged 13....1202
Bureau of Investigation....1196
Bureau of Legal Medicine and Legislation..1211
Burns, acid and alkali, of eye....1201
treatment, urea....*1167
treatment, vitamin A....ab-1222
Calcium, intravenously in digitalized patient.1202
metabolism and gastric acidity....ab-1225
Cancer and race....1190
American Association for Study of....1186
biology....ab-1205
campaign, Belgium's rôle in....1191
carcinogenetic substances....ab-1206
diagnosis, Klein reaction....ab-1225
diagnosis, Moppett test....1191
diagnosis, serocytodiagnosis....1192
heredity and....1192
International Congress on Campaign against....1191
pathology....ab-1205
precancerous conditions of uterus....*1145
surgical treatment....1192
symposium on....ab-1205
tar, dextrose effect on....ab-1226
treatment, radium....1187
treatment, roentgen....1193
Carbohydrates and energy metabolism...ab-1223
Carbuncles, treatment, urea....*1167
*ortho*Chlorphenol, acneform dermatosis from....ab-1216
*tetra*Chlorphenol sodium, acneform dermatosis from....ab-1216
Cocaine, importation of, Australia....1190
Coitus interruptus, blood-tinged semen from.1202
Colon, peristalsis, rôle of appendix....1201
Constipation, diet for; value of fiber....ab-1215
Cooperatives and medical service....E-1180
Correspondence....1197
Council on Medical Education and Hospitals.1203
Council on Pharmacy and Chemistry....1172
Council on Physical Therapy....1170
Cranium, osteomyelitis....ab-1220
Crippled children, public school for, Philadelphia....1185
Death, sudden, during menstruation....1201
Deaths....1193
Dementia Paralytica, treatment....1189
Dental Service, school....C-1197
Dermatitis venenata from Easter egg dye.*1169
venenata from hosiery dyes....1200
vesiculobullous after arsphenamine...ab-1216
Diabetes Mellitus, carbohydrate-basal metabolism relationship....ab-1223
gallbladder and obesity....ab-1224
insulin protamine....ab-1217
Diaphragm, relaxation....ab-1223
Digestion, disorders from low esophagus lesions....ab-1219
Digitalis, calcium intravenously contraindicated after....1202
electrocardiographic changes after....ab-1213
Dogs, rabies prevention in....1201
Easter egg dye, dermatitis from....*1169
Emergency Relief rolls, syphilitic and nonsyphilitic persons on....*1156
Epilepsy and otitis media....1202
in general practice....ab-1217
Esophagus lesions cause indigestion....ab-1219
Evans, H. M., guest lecturer....1183
Evipal Soluble....1172
Eye, acid and alkali burns....1201
Fluid, consumption of New York residents.*1160
Foot, pain and circulatory disturbance in..1200
Foreign Letters....1187
Freiberg, A. H., gave Jones lectures....1184
Furstenberg diet in Menière's disease....*1158
Furunculosis, treatment, biologics in....1202
Gallbladder, diabetes and obesity....ab-1224
Garlic, effect on flavor of milk....E-1181
Gas, poison....E-1181; 1187
Goldstein's hematemesis, gastrorrhagia, etc..1202
Gonadotropic Principles in tuberculosis..ab-1218
Grippe (La), first use of term....1201
Ham, allergy to; substance used in curing.1201
Harelip in thoracophagus....ab-1215
Health, public, budget, discussion in French parliament....1188
public, biennial report, N. M....1184
Heart disease, calcium intravenously in digitalized contraindicated....1202
disease in seamen....ab-1213
electrocardiographic changes after giving digitalis....ab-1213
electrocardiography, position for....ab-1226
insufficiency, sudden death during menstruation....1201
muscle disease, electrocardiographic changes....ab-1225
Hematemesis, Goldstein's....1202
Hemorrhage control by autogenous tissue.ab-1224
Hemotherapy, intramuscular, reaction after....ab-1214
Hosiery dyes, dermatitis venenata from....1200
Hospitals, International Association....1187
St. Thomas's reports, new series....1187
Influenza, first use of term "la grippe"...1201
Insurance against industrial disease, Belgium....1190
Intestines, spasm in pernicious anemia..ab-1222
stasis due to low mineral intake....ab-1214
Jaundice, Weil's disease....ab-1226
Jones (Sir Robert) Lecture....1184
Kahn Test of cord blood....1202
Kidney calculi, postoperative recurrence.ab-1218
disease, electrolyte, water and acid base balance studies in....ab-1219
disease, epinephrine in blood....ab-1225
Kümmell's Disease....1198
Lambliasis, list of remedies for....ab-1222
Larynx, tuberculosis, sympathectomy and x-rays for....ab-1223
Laughlen's Test for syphilis....*1170
Lead, spray residue on fruit....E-1178
Leprosy, American Foundation....1186
Leukemia, aleukemic myelosis, myeloid reaction in....ab-1224
Licensure of professions....ab-1203
McGoldrick, Thomas A., honored....1184
Malaria, myeloradicular neuritis after atabrine....ab-1224
psychosis after atabrine....ab-1217
Marriages....1193
Mask, anesthetic, infection from....1199
Medical Examinations and Licensure....1207
Medical Practice Acts: insurance policy in relation to practice of medicine....Ml-1211
Medical Service for syphilitic indigent....*1156
cooperatives and....E-1180
school....C-1197
Medical Syndicates, French federation of..1189
Medicolegal Abstracts....1211
Meetings, Coming Meetings....1212
Meningitis in Custer, S. D....1185
Menstruation, sudden death during....1201
Metabolism, basal, relation to carbohydrate metabolism....ab-1223
Metaphen, asthma and urticaria from....*1169
Milk, effect of garlic on flavor....1181
Mineral intake (low), intestinal stasis due to....ab-1214
Monsters, thoracophagus....ab-1215
Morphine, imports of, Australia, etc....1190
Mouth, salty taste in....1200
Myxedema; errors in diagnosis and treatment....ab-1217
Neuritis, myeloradicular, from atabrine.ab-1224
Neurofibromatosis, Recklinghausen's....ab-1216
News....1181
Nomenclature, standard, use of....1186
Nose mucosa, rapid invasion of body via.ab-1218
Obesity, diabetes, and gallbladder....ab-1224
Ophthalmology, International Congress....1187
Osteomyelitis of skull....ab-1220
treatment, staphylococcus toxoid....*1151
treatment, urea....*1167
Otitis Media and epilepsy....1202
use of phenol and glycerin in....1201
Otolaryngology, pathologic specimens available....1187
Palate, cleft, in thoracophagus....ab-1215
Paralysis agitans, treatment....1202
Peritonitis a circulatory problem....ab-1225
Physical Examinations: plaintiff in personal injury suit; scope of examination..Ml-1212
Physical Training, better, for English....1188
Physicians, openings for, Calif....1186
Plotz Foundation, grants available....1186
Pneumoconiosis: asbestosis; workmen's compensation in relation to....Ml-1212
Poliomyelitis prevention, picric acid-alum spray in Alabama....ab-1214
Pregnancy and syphilis....ab-1220
Preventive Medicine, handbook of procedures....1183
Professions, price of liberty....ab-1204
regulation....ab-1203
Prostate, cancer....ab-1226
Protein consumption of New York residents....*1160
Psychosis after atabrine....ab-1217
Queries and Minor Notes....1198
Rabies, prophylaxis in dogs....1201
Reed, L. J., appointed dean, Johns Hopkins.1183
Relapsing Fever, transmission by lice and bedbugs in China....ab-1221
Rheumatic Fever, nose and throat in relation to....ab-1221
pulmonary tuberculosis with....ab-1223
Salt consumption of New York residents..*1160
Scarlet Fever, so-called surgical....ab-1226
Schools, medical and dental service....C-1197
medical, report of survey to....ab-1205
Seamen, heart disease in....ab-1213
Semen, blood-tinged, from coitus interruptus....1202
Sison, A. G., new dean, Philippines....1186
Skin epithelioma....1188
postmortem lividity....1202
Smallpox, viruses (pure) and subcutaneous vaccination....ab-1222
Snoring....1198
Society Proceedings....1212
Spine, Kümmell's disease and nucleus pulposus....1198
Spleen, diagnostic epinephrinized contraction in typhoid....ab-1222
Staphylococcus toxoid in osteomyelitis....*1151
State Board Examinations....1207
Stomach, acidity and calcium metabolism.ab-1225
hemorrhage, Goldstein's....1202
Strabismus, prism exercises for....1202
Sweating, excessive local, formaldehyde applied by cataphoresis....ab-1221
Syphilis and pregnancy....ab-1220
in magazines....E-1178
in persons on relief rolls....*1156
serodiagnosis, Laughlen's test....*1170
serodiagnostic tests by state and local laboratories....ab-1213
Wassermann fast or latent....1199
Terpin hydrate in elixir....1202
Tobacco amblyopia, acetylcholine for....ab-1220
Tonics and Sedatives....Adv. Page 24
Tonsils, infected, relation to rheumatic fever....ab-1221
Tuberculosis, pulmonary, with rheumatic fever....ab-1223
treatment, gonadotropic principles in..ab-1218
workers, course for, Puerto Rico....1186
Typhoid, diagnosis, epinephrinized spleen contraction....ab-1222
Ulcers, treatment, urea....*1167
Umbilical Cord blood, Kahn test....1202
Urea treatment of infected wounds....*1167
Urticaria from metaphen....*1169
Uterus cancer....1188
pseudomalignant and precancerous lesions....*1145
Vertigo, aural, Furstenberg treatment....*1158
Vinsonhaler, F., still dean....1181
Vitamin A treatment of burns....ab-1222
D, intoxication....ab-1215
G deficiency, neurologic signs....ab-1216
Warbasse, J. P., on cooperative medicine.E-1180
Wounds, infected, use of urea....*1167
treatment, ichthammol....ab-1222

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PSEUDOMALIGNANT AND PRECANCEROUS LESIONS OF THE CERVIX

EMIL NOVAK, M.D.
BALTIMORE

In almost every statistical study of cancer results that has ever been made, the one conclusion which is always stressed is that the factor which, far more frequently than any other, determines the fate of the patient is the stage at which proper treatment is instituted. On this conclusion are based all the campaigns of public instruction. In the treatment of cancer of the cervix the profession seems to have reached an essential impasse with our present-day methods in spite of the fact that improvements and refinements in radiotherapy are still being pushed, with rather unimpressive improvements in results here and there. For the present, therefore, the obvious point of attack in the cancer campaign lies in the effort to increase the proportion of the early cases in which treatment gives such a worth while chance for cure.

Except for the occasional "accidental" find, one cannot be expected to discover the early cases of cancer unless patients are educated to seek advice as soon as suspicious symptoms appear, though even then, unfortunately, the patient is in some cases already doomed. On the other hand, physicians are not justified in placing the blame for delayed treatment entirely on the patients, for our own skirts are not by any means entirely clean. It is as unfortunate as it is true that there are still not a few patients who lose their opportunity for cure because of delay on the part of the physician, a delay not nearly so frequently due to lack of knowledge as to lack of thoroughness and conscientiousness.

What can physicians in general do to help the cause? They can contribute not only by educating the public collectively but also by taking advantage of everyday opportunities for advising individual women as to possible danger signals and the vital importance of heeding them. But they can do much more than this. They can develop in themselves habits of thoroughness and conscientiousness which will not permit them to omit painstaking examination of all cervices that come under their observation, and especially those of patients with abnormal bleeding or other suspicious symptoms. And there is still more that they can do. They can learn to recognize lesions that are only suggestive of cancer or indicative of early stages of the disease, lesions quite different from the obvious late stages of cancer, such as the cauliflower growth or the excavated ulcer.

A great field for possible advance will be opened up when the general practitioner develops the habit of intensive study of the cervix by careful inspection rather than by mere casual palpation and when he appreciates that cancer may exist even though such an examination reveals only a slightly hardened and perhaps granular or slightly ulcerated area on the cervix, frequently bleeding on slight touch, or a spongy, slightly vegetative area on one or the other lip, with perhaps the same vascularity. If such an area is found, the existence or nonexistence of cancer can be definitely determined in practically every case, and here lies the final duty of the general practitioner; viz., to press the matter unremittingly to a decision, which may be so momentous to his patient. This will mean that both he and the patient must go to a little trouble.

The diagnosis will in such cases often mean biopsy and pathologic examination, so that the average physician will probably elect to put the burden on the gynecologist, presumably trained in such procedures. Since physicians are, after all, primarily people and therefore not always amenable to exhortation and the dictates of conscience, it is obvious that the right plan of procedure cannot be made the universal one. Nevertheless, in his concern at the easily understandable indifference of the public, the physician should not close his eyes to the less forgivable apathy often noted within his own ranks.

The particular problem to be considered in this paper, however, concerns the specialist—the gynecologist and the pathologist—even more than the general practitioner, for it deals with what may be called the earliest stages of cancer and with lesions that in some respects resemble cancer and in others do not, as well as with still other lesions which are commonly looked on as predisposing to cancer.

The term "precancerous" has been used for many years in different senses by different writers and with differing degrees of enthusiasm. By one group the designation has been applied rather generally to lesions believed to predispose to cancer and embracing especially chronic irritative and inflammatory conditions, even though these in themselves are very frankly benign. The other and better definition of the term precancerous refers to lesions that exhibit cell activity unusual in benign conditions and yet lack certain characteristics of actual cancer. When used in this sense, the term conveys the impression that the lesion in question is, from a histologic standpoint, a transitional one, the natural corollary being that it represents a real stepping stone between the benign and the malignant.

Up to comparatively recent years such a concept of the term produced some resentment among a great many pathologists, because of the belief that a lesion is either benign or malignant, though in some cases there may be difficulty in making the histologic differ-

From the Gynecological Department of Johns Hopkins School of Medicine.
Read before the Section on Gynecology and Obstetrics at the annual meeting of the Michigan State Medical Society, Detroit, Sept. 24, 1936.

entiation between the two. During the past few years, considerable evidence is accumulating to suggest, though not perhaps to prove, that there is actually a very gradual histologic transition from the benign to the malignant and that certain so-called borderline conditions may actually represent transitions to cancer or very early forms of the disease, even though there is no

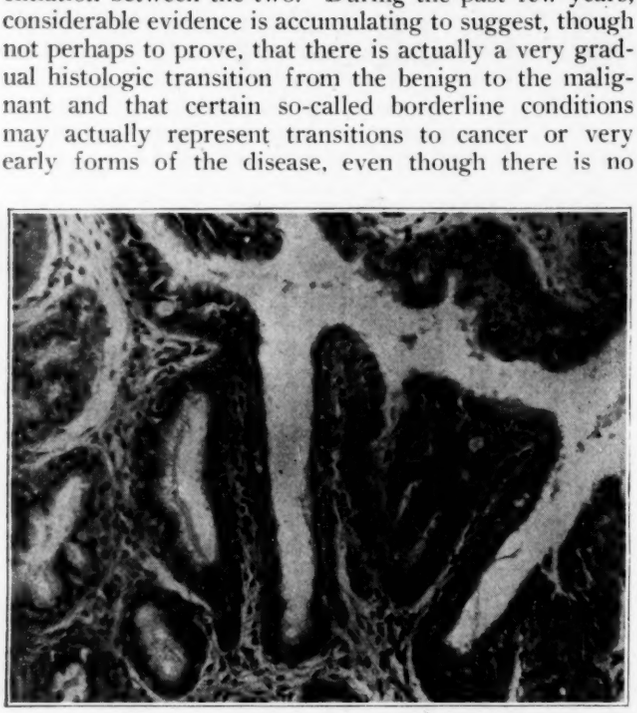

Fig. 1.—Squamous epithelium creeping in long columns beneath the columnar gland epithelium, often proliferating so as to blot out the latter and form large epithelial nests, which may be mistaken for cancer.

morphologic criterion to determine just when the definitive stimulus is applied that sets the cells off on a malignant career.

In whichever of the two foregoing senses the term precancerous is used, I believe it has served a useful purpose, keeping before the physician the idea of lesions precursory to actual cancer but clinically benign in themselves, so that their removal gives a measure of protection against cancer. It need hardly be emphasized that most lesions of this sort are merely predisposing and that their unfavorable tendencies can lead to cancer only when some other constitutional factor, as yet unknown, is operative. The profession is as yet totally in the dark as to the exciting cause or causes of the whole group of cancer diseases and so can do nothing to avert or counteract these unknown forces. But it can readily correct most of the benign irritative lesions, which by almost unanimous consent have an influence on the development of cancer; and this represents about the sum total of cancer prophylaxis at the present day.

A number of studies of large series of cases have been made on this point (Pemberton, Smith and his associates, Bland, and Graves) and these have been summated by Saltzstein and Topcik.[1] Of 18,562 patients who may be considered to have had adequate treatment for cervical irritative lesions, only fifteen were known to have developed cancer later. On the other hand, of 2,255 patients who actually had cervical cancer, only thirty-three had had adequate treatment of preexisting cervical lesions.

In no field are the precancerous lesions more interestingly illustrated than in the cervix. Here is encountered one of the most common types of cancer, and here, chiefly as a result of childbirth trauma, is found an unusual incidence of chronic irritative lesions, in a part of the uterus which is readily accessible to both diagnostic and therapeutic procedures. The body of the uterus, on the other hand, is relatively free from the traumatic effects of childbirth, and there is much doubt whether the presence of myomas influences the incidence of corporeal carcinoma to any noteworthy degree. On the other hand, it is here that the ovarian hormones exert their outstanding effects, and the work of the past two years has shown a rather remarkable relationship between these hormones and carcinogenesis, as I shall later discuss. Here, then, is a possible predisposing factor to be considered in connection with the genesis of corporeal cancer, and one which I do not believe can be disregarded.

Starting with lesions of the cervix that are frankly benign, and which from the standpoint of cancer are merely predisposing but not precancerous, by far the most important group is that represented by the chronic inflammatory and irritative lesions so very frequent in this portion of the uterus. Even in the most intense forms of chronic cervicitis there is usually not the slightest pathologic simulation of cancer, although in not a few there is much justification for clinical suspicion. One frequently sees cervices that are badly eroded, irregularly hypertrophied and indurated, with a granular mucosa which bleeds very readily on slight touch and in which, therefore the clinician would be very remiss if he did not at least suspect the possibility of a malignant condition. And yet in such cases one often finds, in spite of extensive inflammatory changes, not the slightest suspicion of histologic malignancy if a biopsy is done, as it should be. On the other hand, in lesions which clinically are far less conspicuous and which must be searched for much more intensively, one may find definite evidence of cancer.

Fig. 2.—Large epithelial nests seen with epidermidization of cervix but with none of the cytologic changes seen with cancer. Compare with figure 3.

In a rather considerable proportion of inflammatory lesions, as well as in not a few cervical polypi, one may encounter histologic pictures which, while entirely benign, may easily be mistaken for cancer unless one is familiar with their characteristics and significance. The changes to which I particularly refer are those designated as squamous metaplasia or epidermidization. In this condition columns and nests of squamous epithelium may invade far below the surface, so that in

1. Saltzstein, H. C., and Topcik, H. C.: Am. J. Cancer **17**: 951-961 (April) 1933.

marked cases a pattern is produced which is not unlike that of epidermoid cancer. Much more frequently one sees that the squamous invasion proceeds from the basal layers of the surface mucosa, which flows down along the gland wall beneath the cylindric epithelium. The proliferation of the squamous epithelium may produce flattening or disappearance of the columnar gland cells and eventually replacement of the gland by a column of squamous epithelium. In such cases the cervical stroma may show numerous nests of squamous epithelium and hence the simulation of cancer.

The distinction is usually easily made, chiefly on the following points: 1. The invading epithelium shows no sign of anaplastic activity, though even this may in some areas be simulated, as when the section passes tangentially through the basal layers, which normally show more compactness, larger and heavier staining nuclei, with perhaps occasional mitosis. Examination of other fields, however, will almost always clear up this point of doubt. 2. Characteristically the invading squamous epithelium follows the scaffolding of the glands, creeping beneath the glandular epithelium as a column of from one to many cells in thickness, which by further proliferation encroaches more and more on the gland epithelium and often blots it out almost or quite completely. One then has the picture of solid nests and columns of cells deep in the stroma, and in this respect resembling a carcinoma. It is rare, however, not to find the telltale transition phases showing the manner of development of these extreme pictures.

Even in cell nests which at first sight look quite solid, one often sees fenestrae of mucoid content, degenerated remnants of the original mucoid cylindric cervical gland epithelium. The manner of production of this type of epidermization, as well as the difference between its histologic appearance and that of genuine cancer, are well shown in figures 1, 2 and 3. For a fuller discussion of the histogenesis of this interesting process I refer to a previous paper of my own.[2] The lesion is one of great frequency and of great importance from the standpoint of differential diagnosis, and mistakes are still frequently made, though less often than formerly.

To pass on to the discussion of lesions which are precancerous in the sense of being possible precursors of the disease rather than merely predisposing factors in its development, especial interest attaches to leukoplakia, which up to a few years ago was practically an unheard of lesion so far as the cervix is concerned. The present-day interest in this condition is due to the development of two new diagnostic methods, the colposcope of Hinselmann and the Schiller tinctorial test. During the past ten years or so Hinselmann[3] has published numerous papers stressing the fact that only with the magnifying colposcope can one hope to discover the often tiny areas of leukoplakia. More important, however, is his contention that cervical leukoplakia in general must be looked on as a precursor of cancer, a view which, as will be seen, has led to widespread discussion and much difference of opinion.

The Schiller test,[4] based on the discovery by Lahm that the normal squamous epithelium of the portio is rich in glycogen while cancerous epithelium is lacking in glycogen, has also been the subject of much discussion. The method is often though not necessarily combined with colposcopy. The procedure consists of painting the cervix very thoroughly with Gram's solution (1 part of iodine, 2 parts of potassium iodide, 300 parts of water), this giving better results than compound solution of iodine, which is used by some. Instead of painting the cervix, one may spray the solution on with an atomizer, as Henriksen[5] has suggested.

The normal squamous epithelium of the cervix takes a deep brown or mahogany stain, while cancerous epithelium remains unstained. The problem, however, is not quite so simple as this, chiefly because other lesions than cancer may fail to take the stain. This applies especially to the leukoplakic group. Moreover, it should be remembered that the cylindric epithelium of the cervical canal takes only a rather light pinkish brown stain, and proper cognizance of this must be taken in the numerous cases in which erosions and ectropion are associated features. Traumatic abrasion of the squamous epithelium may also interfere with its tinctorial response, while cancers in which ulceration and necrosis have developed may take a dirty brownish stain, though at their growing margin whitish unstained areas may be noted.

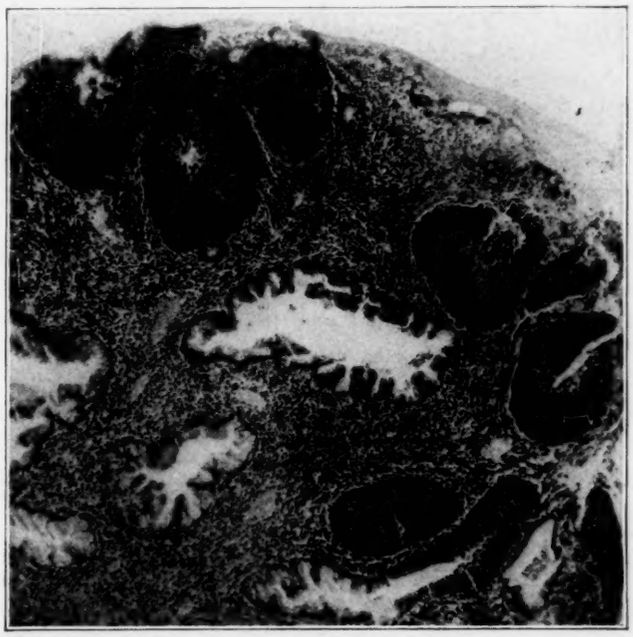

Fig. 3.—The cell nests of genuine early cancer, made up of highly anaplastic epithelium.

So far as these two diagnostic procedures are concerned, my own impression, after some experience with both, is that they are of rather limited value. Neither procedure is of the kind which can be expected to achieve adoption by the general profession, nor is this desirable. Considerable experience is necessary for proper interpretation with either method, and neither is of much value unless combined with biopsy and pathologic diagnosis, so that it is quite certain that the general practitioner will wish to transfer this responsibility to the specialist who is trained in such matters. Colposcopy, moreover, is a time-consuming procedure.

The chief value of the Schiller test, even to the expert gynecologist, is to indicate the proper points for biopsy, though in the great majority of these cases the suspicious areas are apparent enough, sometimes

2. Novak, Emil: Am. J. Obst. & Gynec. **18:** 449-473 (Oct.) 1929.
3. Hinselmann, H.: Zentralbl. f. Gynäk. **51:** 901-903 (April 9) 1927; Ztschr. f. Geburtsh. u. Gynäk. **101:** 142-165, 1931.
4. Schiller, W.: Surg., Gynec. & Obst. **56:** 210-222 (Feb.) 1933.
5. Henriksen, E.: Surg., Gynec. & Obst. **60:** 635-644 (March) 1935.

pathetically so. The same statement may be made concerning the colposcope, so far as actual cancer is concerned.

I do not believe that a good gynecologist who examines the cervix very carefully in a very good light will overlook many cancers that the colposcope would reveal, in spite of Hinselmann's contention to the contrary. Moreover, this procedure as well as the Schiller test, is obviously intended chiefly for the detection of the

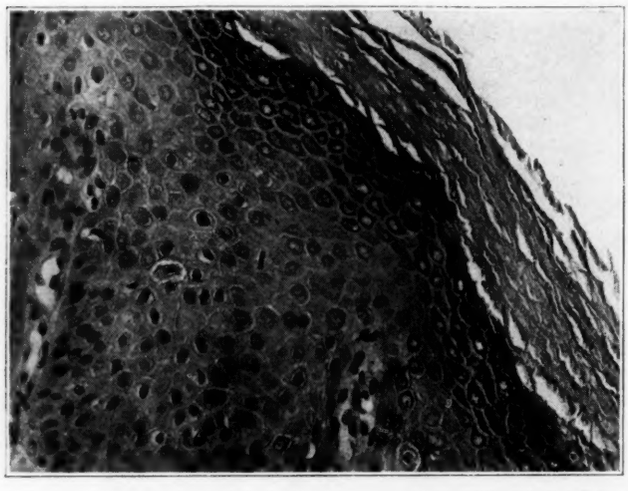

Fig. 4.—Leukoplakia of the cervix, presenting as an unstained whitish plaque with the Schiller test, but pathologically showing only hyperkeratosis and slight increase of cell activity, with occasional mitoses but with no suggestion of malignancy.

earliest cases, those in which there has been no bleeding, for the occurrence of the latter presupposes that ulceration has already begun. To pick up these very early cases the colposcope would have to be used practically as a routine, which is almost out of the question in most clinics. In cases in which symptoms have already developed there is rarely any difficulty in finding the suspicious area with the naked eye.

On the other hand, both these procedures are of importance in that intensive study of the cervix which alone will ultimately throw light on the very earliest stages of cancer, as well as of those lesions which many look on as stepping stones to cancer. For this reason their employment in properly manned clinics is highly desirable, for they will keep constantly before the staff the importance of intensive study of the cervix, and their employment, combined with biopsy, should yield material for the study of a group of lesions concerning which pathologic knowledge is still anything but precise.

As a matter of fact, in many laboratories of gynecologic pathology the recently developed intensive interest in the cervix is already reflected in the increased amount of this borderline material. Up to the past few years there was only an exceptional case in which the presence or absence of a malignant condition could not be reported with reasonable certainty. The increased number of cases in which pathologists will disagree is due not only to the increased interest in biopsy, which has been engendered by the work of Hinselmann and Schiller, but also to the fact that there is no unanimity among pathologists as to the criteria of very early cancer.

Even in the clinically early cases with which physicians have had to deal in past years, the pathologic diagnosis has usually been easy enough, for such lesions present exactly the same pathologic features as do very late cancers. There is the same evidence of varying degrees of cell anaplasia and the same evidence of invasiveness. The late cancers differ from the early ones only in degree and perhaps in such secondary changes as infection, necrosis and ulceration.

But there must be even earlier phases, phases that the physician has probably been overlooking. Is it not logical to believe that there must be stages before actual invasion sets in, in which the epithelium has nevertheless already embarked on its malignant career? As a matter of fact, it is around this point that much of the present-day discussion centers, some holding that evidence of invasiveness is a sine qua non to the diagnosis of a malignant condition, others that even without this there may be a reasonable certainty of one.

The various degrees of leukoplakia have furnished the basis for much of this discussion. The term is really a clinical rather than a pathologic one, and as employed by Hinselmann it is a very comprehensive term embracing many different degrees of abnormality. These range from simple hyperkeratosis with perhaps slight increase in activity of the basal layers (Hinselmann's rubric I) at one extreme to lesions which most pathologists would call cancer, characterized as they are by hyperchromatosis, mitosis and other evidences of anaplasia, together with budding into the underlying stroma (rubric IV).

Between the first two grades of the four described by Hinselmann (rubrics I and II) and actual cancer there is a wide gap, almost as wide as that between normal epithelium and cancer. And yet this author believes that all grades of leukoplakia are precancerous, a view which, to my mind, is not supported by his evidence. Only a very small group of cases have been discovered in which cancer appears to have developed on a leukoplakic basis. However, as Meyer [6] says, this is no more justification for considering leukoplakia an important precancerous lesion than the occasional occur-

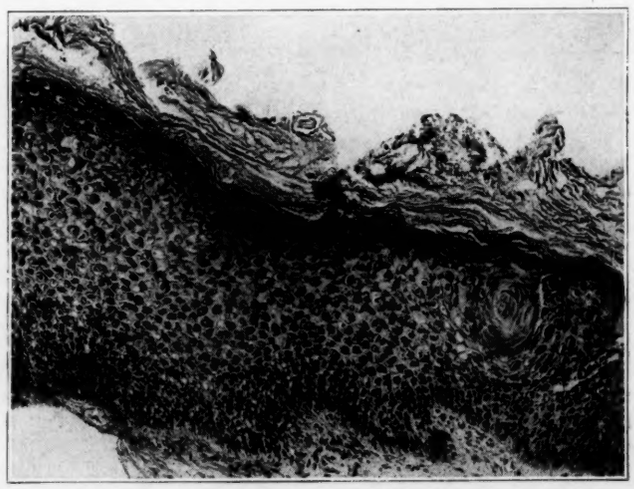

Fig. 5.—Intra-epithelial carcinoma, without invasiveness but with loss of normal stratification, hyperkeratosis, an attempt at pearl formation and definite anaplastic cell changes, with frequent mitosis. This picture is often spoken of as Bowen's disease of the cervix, from an assumed analogy with Bowen's disease of the skin.

rence of carcinomatous changes in polypi justifies the statement that polypi are precursors of cancer.

These simpler grades of leukoplakia are much more logically explained, it seems to me, as instances of the differentiation anomalies which are so commonly seen throughout the genital tract, as I have discussed in a

6. Meyer, R., in Henke, Friedrich, and Lubarsch, Otto: Handbuch der speziellen pathologischen Anatomie und Histologie **7**: 182, 1930.

previous paper.[7] Patches of squamous epithelium may be found on the endometrium, and endometrial islands may be found in the tubal mucosa. Similarly it might be expected that in some cervices one might find islands in which the epithelium is more highly differentiated than is normal for the region (prosoplasia), with hyperkeratosis as an evidence of this. A good analogy may be seen in the amniotic epithelium, which, like the skin, is of ectodermal origin. The so-called amniotic caruncles are plaques of skinlike appearance which may be found in the normally cuboidal epithelium of the amnion, representing just such a differentiation anomaly as I believe may occur in the case of leukoplakia of the cervix.

Between Hinselmann's rubric II and rubric III there is a very sharp gap, for in the latter one finds evidences of cell anaplasia quite like those of cancer, though invasiveness is lacking. It is this group in which we have been most interested in our own laboratory. In general, the picture corresponds to what many have called intra-epithelial carcinoma, carcinoma in situ, carcinoid, or Bowen's disease. In this condition the epithelium shows anaplastic changes quite comparable to those which are ordinarily associated with cancer, but there is no penetration through the basement membrane. It is significant that exactly the same picture of noninvasive epithelial carcinoma is often to be seen at the growing margin of very frank cancer.

The latter observation lends support to the view held by many that intra-epithelial carcinoma is genuine cancer, although the cells have not yet entered on the career of invasiveness which is the chief characteristic of cancer as one ordinarily sees it. From the relatively small amount of cervical material of this sort as yet available for study, it would seem that in this preinvasive stage the lesion is readily curable by very simple conservative measures. Moreover, there may apparently be a very definite and perhaps a long pause or lag between the intra-epithelial and the invasive phases of the process. This would seem likely if one harks back to the example of Bowen's disease of the skin,[8] in which the lesion may be noninvasive for many years, with the development then of invasiveness and metastasis.

Intra-epithelial carcinoma of the type I have been describing is a rather rare lesion in the cervix, and the greatest caution is necessary in its diagnosis. The chief hazard comes from incompleteness of study, and I have on a number of occasions, in lesions at first thought to belong to this category, found on the study of other sections that actual cancer was present close by. In the study of all such early lesions the importance of numerous, preferably serial, sections cannot be too strongly emphasized.

No discussion of this general subject would be complete without stressing the value of biopsy. In many instances not even the most expert gynecologist can determine the presence or absence of cancer by clinical methods alone. Most cases of very early cancer are either accidental finds, perhaps in patients with no symptoms at all, or they are revealed by the careful investigation of cervices that are regarded merely as suspicious. In some of these there is perhaps a leukoplakic area, but more often one's suspicions are aroused by a small area of induration with very slight surface ulceration, or a firm area of rather granular appearance that bleeds on slight touch, or a finely vegetative area which likewise shows marked vascularity. It is such lesions as this for which one must search the cervix, and not merely the large excrescent cauliflower growths or the various indurated or ulcerative lesions that characterize the late lesion, where diagnosis is about as easy as the prognosis is unfavorable.

In these late stages the microscope could almost be dispensed with in diagnosis, but in the early group mentioned previously it is the final arbiter. Biopsy is here of crucial value, and it is essential that the tissue for examination be obtained directly from the area under suspicion. If this is not done the pathologic report is worse than useless, for a negative report will lull the clinician into a false security while a genuine cancerous lesion may be progressing a short, or perhaps a considerable, distance from the biopsy wound.

The pathologist can be expected to find cancer only if it is present in the tissue submitted to him for examination, so that the important responsibility of proper biopsy belongs to the clinician, who may employ any one of several methods to obtain tissue from the cervix. When the latter is easily accessible I prefer a sharp scalpel, with cauterization of the wound edges with the electrocautery. When the cervix is high up and the vaginal canal is long and narrow, the scalpel is apt to be awkward and unsatisfactory, and in these the punch is a very satisfactory instrument for biopsy. Others prefer the cautery knife or the endothermy knife for this purpose, though, especially with the former, the tissue is apt to be partially cooked, so that the resulting sections may not be so satisfactory.

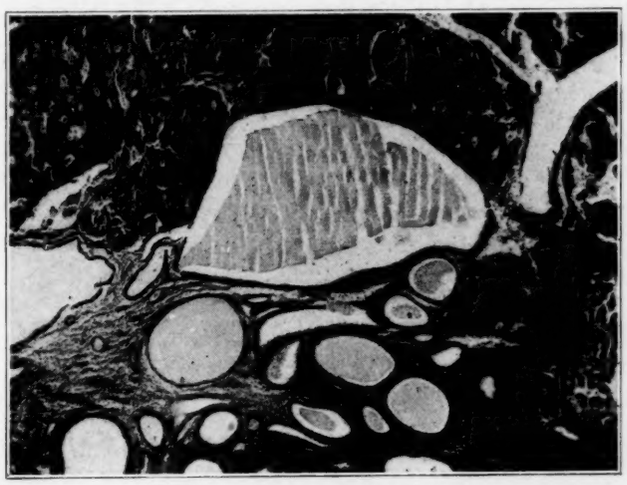

Fig. 6.—Adenocarcinoma of the uterus, with hyperplasia of endometrium adjoining it, in a patient aged 59.

Little need be said as to the supposed dangers of biopsy, for, even though these were real, the procedure would still be justified because of the indispensability of the information that it yields and that can be obtained in no other way. As a matter of fact, there is no worth while evidence to indicate that biopsy of the cervix is fraught with any extra hazard to the patient.

One other point concerning the rôle of the pathologist is worthy of special stress. In dealing with very early lesions it should be borne in mind that evidence of cancer may be lacking in one part of the biopsy tissue and be present in another, so that serial section is of great importance. The entire block should be sectioned, and sections at various levels should be stained and examined so that nothing of importance will be overlooked. I have more than once been inclined to the

7. Novak, Emil: Am. J. Obst. & Gynec. **24**: 635-655 (Nov.) 1932.
8. Bowen, J. T.: J. Cutan. Dis. **30**: 241-255, 1912.

diagnosis of precancerous lesions, such as Bowen's disease or intra-epithelial noninvasive carcinoma, only to find in other sections indubitable evidence of invasive carcinoma.

In this connection I have in a recent paper called attention to the frequent advisability, more especially in women beyond the child-bearing period, of cervical amputation rather than mere biopsy when there is a suspicion of an early malignant condition. By this plan the whole cervix is made available for complete pathologic study. If cancer is revealed, the appropriate radiotherapeutic measures can be instituted; if not, the procedure may be considered to have carried with it a considerable measure of prophylactic value.

PRECANCEROUS LESIONS OF THE CORPUS UTERI

Aside from the very doubtful rôle of myomas in predisposing to endometrial carcinoma, there has been little discussion as to lesions that might be considered as precancerous in this portion of the uterus. Within the past few years, however, considerable evidence has accumulated to indicate that estrogenic substances may exert a markedly carcinogenic tendency, particularly in those organs which, like the breast and the uterus, are normally under the physiologic control of these estrogenic principles.[9] This evidence has been summarized in a recent paper by Yue and myself,[10] based on the study of 864 cases of hyperplasia of the endometrium and 104 cases of adenocarcinoma of the uterine body.

The accepted cause of hyperplasia is a persisting hyperestrinism, so that it seemed of interest to determine whether there is any relation between this lesion and adenocarcinoma. Without going into details, I may say that no such relation is demonstrable during the reproductive epoch, when corporeal carcinoma is relatively infrequent and hyperplasia very common. On the other hand, in a surprising proportion of cases of women well beyond the menopause, hyperplasia and adenocarcinoma were found to coexist in one and the same uterus.

That hyperplasia may occur long after the menopause has been shown not only by our own studies but also by those of others (Breipohl, Schröder), though one can only speculate as to the source of the estrogenic stimulation at this period of life, when the ovaries have presumably lost their internal secretory function. But when the endometrium of the postmenopausal woman is subjected to prolonged and persistent estrogenic stimulation, not only is hyperplasia produced but there is apparently a strong tendency to the development of actual cancer. In fully twenty-five of our cases, for example, such pictures as that shown in figure 6 are found, with hyperplasia and carcinoma existing side by side and often with transition pictures between the two lesions.

This is not to say that the hormone stimulus actually produces the cancer, the suggestion rather being that an abnormal estrogenic stimulus acting on a tissue which by age and other unknown factors is rendered prone to cancer development exerts a strong predisposing influence, perhaps just as does any form of chronic irritation. In view of recent studies showing the close relationship of estrogenic and carcinogenic substances and the reports of the actual production of what is apparently genuine carcinoma by the injection of estrogenic principles, it is not impossible that the relation between the hormone-produced hyperplasia and cancer is a much more direct one, though present knowledge does not warrant such a conclusion. For a fuller discussion of this problem, however, I may refer the reader to our recent paper on the subject.

9. Loeb, Leo: Glandular Physiology and Therapy, Chicago, American Medical Association, 1935, chapter XIII, pp. 173-192.
10. Novak, Emil and Yue, E.: Am. J. Obst. & Gynec., to be published.

SUMMARY

For the present, the most promising line of advance in the cancer campaign is the effort to increase the proportion of early cases submitted to proper treatment. Important though popular education unquestionably is, there is still a great opportunity for education within our own ranks, along lines which have been indicated in this paper.

The term "early cancer" is a very relative one, and the lesions that I have discussed have been chiefly the earliest phases of the disease, as well as certain lesions which histologically are of a borderline type. Diagnosis in this group concerns the gynecologic specialist and the pathologist much more than the general practitioner, though the latter should train himself to recognize merely suspicious lesions as well as those characterizing actual cancer.

Recent intensive studies on the cervix have focused attention on leukoplakia as a possible precursor of cancer. The term is a rather broad one, embracing various degrees of hyperkeratosis, increased cell activity and even anaplasia. In many cases there is no histologic suggestion of a malignant condition, and the evidence that such lesions are important precursors of cancer is very unconvincing. In the leukoplakia group, however, many include also lesions in which the epithelial anaplasia is indistinguishable from that of cancer, though there is no invasiveness. Do these cases of carcinoma in situ, carcinoid, intra-epithelial cancer or Bowen's disease of the cervix represent preinvasive phases of genuine carcinoma? I believe that they do, though a long interval may elapse before the second and more decisive phase of malignancy, the invasiveness, may manifest itself.

The evidence is quite convincing that cancer is preceded by a preinvasive stage, but there is still much doubt as to whether the reverse is true; that is, whether the so-called preinvasive stage inevitably becomes cancer. The pathologic feature that determines clinical malignancy is invasiveness, and hence on this point I do not agree with Schiller, who does not hesitate to diagnose cancer even in the absence of invasiveness, although he concedes that even many years may elapse before invasiveness may—or may not—develop. But during this preinvasive stage the lesion is still clinically a benign one and hence should be considered a precursor of cancer rather than an early stage of the latter. If Schiller's concept is true, the life history of cancer of the cervix might be of many years' duration, the traditional invasive phase being merely a terminal one. During the preinvasive stage the lesion might be a practically invisible one, with no tendency to metastasis at this stage, during which it can be cured by simple conservative procedures. But malignancy is, after all, a clinical and not a pathologic attribute, and it would seem paradoxical to apply the term cancer to lesions in this preinvasive stage. Something else is necessary before they can actually become clinically malignant, and the pathologic evidence that this final decisive step has been taken is furnished by the microscopic demonstration of invasiveness.

In the study of borderline cases and in the search for very early cancer, the colposcope and the Schiller tinc-

torial test are of considerable value; but they are handicapped by various limitations, which have prevented their more general adoption. Both methods, however, are valuable assets in any clinic, because they stimulate an interest in intensive study of the cervix and also unquestionably help in the recognition of precancerous lesions and occasionally of early cancer itself.

So far as precancerous lesions of the uterine body are concerned, attention has been called to the not uncommon observation of hyperplasia long after the menopause and the not infrequent coexistence of hyperplasia and adenocarcinoma in postmenopausal women. This suggests that postmenopausal hyperestrinism, whatever its cause may be, may be a precancerous factor of some importance.

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THE USE OF STAPHYLOCOCCUS TOXOID IN THE TREATMENT OF CHRONIC OSTEOMYELITIS

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NEW YORK

On the wings of the now classic tragedy of Bundaberg, Australia,[1] came a new method of approach in the therapy of staphylococcic infections. The immediate subsequent investigations by Burnet and his associates,[2] and those of Dolman,[3] Panton, Valentine and Dix,[4] Parish and Clark[5] and others have enriched our knowledge of the immunology of staphylococcic infections with special reference to their toxins, toxoids and antitoxins. These workers demonstrated that active immunization can be induced by the administration of staphylococcus toxin. They furthermore developed staphylococcus toxoid, which is staphylococcus toxin detoxified with formaldehyde, capable of bringing about similar responses in the living animal without the limitations and dangers incidental to the use of toxin. This induced active immunity has in some instances been sufficient to enable rabbits to withstand injections of definitely lethal doses of living toxigenic staphylococci or staphylococcus toxin. Dolman[6] carried this work further by demonstrating the antigenicity of toxoid in a series of six normal human volunteers.

In view of these experimental demonstrations of active immunization of animals and human beings it appears theoretically possible to attack staphylococcic infection by means of subcutaneous administration of toxoid. Dolman[6] concluded that toxoid therapy "might result in a favorable modification, and perhaps cure . . . with some degree of protection against similar infections in the future." To Holman[7] it seemed "a perfectly logical procedure to build up antitoxin [by the use of toxoid] as a defense mechanism if it is reasonably certain that no abnormal or harmful sensitization will later result."

The therapeutic application of staphylococcus toxoid has been carried out by a number of investigators.[8] With a few exceptions their efforts have been largely confined to superficial staphylococcic infections and the reported results have in general been decidedly favorable. Cures were reported and recurrences, when they occurred, were often milder than the original infections. The enthusiasm of several authors led them to the belief that toxoid therapy is far superior to any other method of treatment in superficial staphylococcic infections. In contrast to these favorable reports are the unsatisfactory experiences of Kindel and Costello[9] and Cornbleet and Rattner.[10] Dolman[11] attributed their unfavorable results to the use of a monovalent toxoid and pointed to the importance of using a polyvalent preparation from several highly toxigenic strains of staphylococci.

The therapeutic application of toxoid in fifty-nine cases of chronic and subacute staphylococcic osteomyelitis was recently reported by Dolman.[8e] Though he recognized the special difficulties confronted in the evaluation of any method of therapy in chronic osteomyelitis, he nevertheless reached the conclusion that, "despite all these difficulties, distinctly favorable results appear in general to attend the use of staphylococcus toxoid in chronic osteomyelitis." Ramon and his collaborators[8h] have very recently reported "encouraging" results in cases of osteomyelitis under toxoid therapy. They felt, however, that their experience was too short to warrant the final judgment of the therapeutic value of toxoid in this type of case.

Experiences at the Hospital for Joint Diseases have led me to believe that with thorough surgery followed by maggot therapy we can in a high percentage of suitable cases bring about a local healing of such a nature that relighting of the processes at the treated sites will in all probability not occur. This belief is based on the character of the healing that takes place, which I have described elsewhere.[12] In view of our

From the Service of Dr. Samuel Kleinberg, Hospital for Joint Diseases.

1. The disaster occurred at Bundaberg, Queensland, in January 1928, when twelve of twenty-one children who had been injected with a contaminated diphtheria toxin-antitoxin mixture without preservative died within twenty-four hours or so from acute staphylococcic septicemia.

2. Burnet, F. M.: The Exotoxins of Staphylococcus Pyogenes Aureus, J. Path. & Bact. **32:** 717 (Oct.) 1929; The Production of Staphylococcal Toxin, ibid. **33:** 1 (Jan.) 1930; The Interactions of Anatoxin and Antitoxin, ibid. **34:** 471 (July) 1931. Burnet, F. M., and Freeman, Mavis: The Process of Formol Detoxication: Experiences with Purified Staphylococcal Toxin, ibid. **35:** 477 (July) 1932.

3. Dolman, C. E.: Pathogenic and Antigenic Properties of Staphylococcus Toxin, Canad. Pub. Health J. **23:** 125 (March) 1932.

4. Panton, P. N.; Valentine, F. C. O., and Dix, V. W.: Staphylococcal Infection and Antitoxin Treatment, Lancet **2:** 1180 (Nov. 28) 1931.

5. Parish, H. J., and Clark, W. H. M.: Staphylococcal Toxin and Antitoxin, J. Path. & Bact. **35:** 251 (March) 1932.

6. Dolman, C. E.: Treatment of Localized Staphylococcic Infections with Staphylococcus Toxoid, J. A. M. A. **100:** 1007 (April 1) 1933.

7. Holman, W. L.: Studies on Staphylococci, Am. J. M. Sc. **189:** 436 (March) 1935.

8. These include:
(*a*) Dolman.[6]
(*b*) Panton, P. N., and Valentine, F. C. O.: Staphylococcal Toxin, Lancet **1:** 506 (March 5) 1932.
(*c*) Connor, J. I., and McKie, M.: Treatment of Superficial Staphylococcal Infection by Toxoid, Brit. J. Dermat. **46:** 20 (Jan.) 1934.
(*d*) Parish, H. J.; O'Meara, R. A. Q., and Clark, W. H. M.: The Clinical Investigation of Staphylococcal Toxin, Toxoid and Antitoxin, Lancet **1:** 1054 (May 19) 1934.
(*e*) Dolman, C. E.: Clinical Uses of Staphylococcus Toxoid, Lancet **1:** 306 (Feb. 9) 1935.
(*f*) Murray, D. S.: Staphylococcus Toxoid: A Clinical Trial, Lancet **1:** 303 (Feb. 9) 1935.
(*g*) Ramon, G.; Bocage, A.; Richou, R., and Mercier, P.: L'anatoxine staphylococcique et son emploi dans le traitement spécifique de certaines affections dues au staphylocoque, Presse méd. **43:** 1137 (July 17) 1935.
(*h*) Ramon, G.; Bocage, A.; Mercier, P., and Richou, R.: L'anatoxine staphylococcique et son emploi dans le traitement des affections dues au staphylocoque: Nouveaux résultats, ibid. **44:** 185 (Feb. 1) 1936.
(*i*) Nélis, P.: Une nouvelle thérapeutique des staphylococcies: La vaccinothérapie par l'anastaphylotoxine, ibid. **43:** 1141 (July 17) 1935.
(*j*) Gilchrist, J. A., and Wilson, M. J.: Staphylococcic Infections in Diabetes Mellitus, with Special Reference to the Use of Staphylococcic Toxoid, Canad. M. A. J. **30:** 353 (April) 1934.
(*k*) Gilchrist, J. A., and Wilson, M. J.: The Clinical Use of Staphylococcic Toxoid, ibid. **33:** 292 (Sept.) 1935.
(*l*) Whitby, L. E. H.: The Modern Treatment of Staphylococcal and Pneumococcal Infections, Lancet **2:** 779 (Oct. 6) 1934.

9. Kindel, D. J., and Costello, M. J.: Staphylococcus Toxoid in the Treatment of Pustular Dermatoses, J. A. M. A. **102:** 1287 (April 21) 1934.

10. Cornbleet, Theodore, and Rattner, Herbert: Staphylococcus Toxoid, J. A. M. A. **102:** 1780 (May 26) 1934.

11. Dolman, C. E.: Staphylococcus Toxoid in the Treatment of Pustular Dermatoses, J. A. M. A. **102:** 1699 (May 19) 1934.

12. Buchman, Joseph, and Blair, J. E.: Maggots and Their Use in the Treatment of Chronic Osteomyelitis, Surg., Gynec. & Obst. **55:** 177 (Aug.) 1932. Buchman, Joseph: The Rationale of the Treatment of Chronic Osteomyelitis, with Special Reference to Maggot Therapy, Ann. Surg. **99:** 251 (Feb.) 1934. Pomeranz, M. M.: Peculiar Regeneration of Bone Following Maggot Treatment of Osteomyelitis, Radiology **19:** 212 (Oct.) 1932.

experiences with local therapy and in view of the promising reports of the immunologic therapy previously described we were fired with the hope of being able (1) to immunize these unfortunate patients against future exacerbations of old lesions, (2) to prevent new metastatic lesions in bone and soft tissues and (3) to expedite the healing of existing lesions.

CLINICAL MATERIAL

With these ideas in mind, we began in the latter part of December 1934 to administer staphylococcus toxoid in a group of unselected cases of chronic staphylococcic osteomyelitis. This group consisted of thirty-eight patients ranging in age at the time of observation from 7 to 55 years, as shown in table 1. The duration of the disease varied from two months to fifty-four years before the onset of toxoid therapy, with more than half of the cases lasting six years or less (table 2).

TABLE 1.—*Age Distribution*

Age	Patients
First decade	3
Second decade	13
Third decade	9
Fourth decade	4
Fifth decade	7
Sixth decade	2
Total	38

Only a few of these patients had only one prior operation. The remainder had had many operative procedures; one patient had as many as twenty-two on one tibia over a period of eighteen years without ever obtaining even a temporary closure of the wound. Thirty of these cases were of hematogenous origin, four were the result of compound fractures, one was subsequent to an infection following an open operation performed elsewhere for a simple dislocation of an astragalus, two were the result of secondary infections following operations for tuberculous knees, and one was subsequent to an open operation for nonunion of a fracture in a syphilitic patient with tabes dorsalis. The etiologic agent in all cases was proved to be Staphylococcus aureus. The status of the patients at the beginning of toxoid therapy is shown in table 3.

TABLE 2.—*Duration of Osteomyelitis at the Beginning of Toxoid Therapy*

Duration	Cases
1 year or under	3
1- 5 years	19
6-10 years	4
11-15 years	5
16-20 years	3
21-25 years	2
44 years	1
54 years	1
Total	38

All these patients, save for a few exceptions, had previously been operated on elsewhere and had various types of after-care including the classic Carrel-Dakin and Orr methods. These cases, which presented ulcers, had previously had pinch grafts or skin plastic operations with or without temporary healing.

SURGICAL THERAPY

During the course of the toxoid therapy those cases presenting frank bone lesions were subjected to radical saucerization operations when anatomic topography permitted. The great majority of these patients were subsequently treated with maggots. A few of these were treated with "maggot enzyme, Lederle," [12a] and several were treated with allantoin supplied by the Bureau of Entomology of the U. S. Department of Agriculture.[13] Chronic skin ulcers were treated with live steam, cod liver oil ointment, as described by Loehr,[14] or with injections of allergic serums according to the Walzer [15] technic.

TOXOID THERAPY

Toxoid Used.—We used throughout this investigation a commercial stock of polyvalent staphylococcus toxoid-Lederle, which was supplied through the courtesy of the manufacturer. The producer described this preparation in a folder accompanying each vial as follows: "Detoxification of the toxin is effected with formaldehyde. It is carried to the point where the intracutaneous injection of 0.1 cc. into the skin of a susceptible rabbit will no longer cause necrosis." It should be noted that the manufacturer makes the claim that its product is valuable in stimulating antitoxin production. The preparation consisted of two dilutions: dilution 1 contained 100 "units" per cubic centimeter and dilution 2 contained 1,000 "units" per cubic centimeter. The manufacturer described the "unit" of staphylococcus toxoid as "the toxoid obtained from a dermonecrotizing unit of toxin (the least amount of toxin which on intradermal injection in a susceptible rabbit will produce an erythema with a central necrosis at least 5 × 5 mm. in diameter").

TABLE 3.—*Status of Patients at the Beginning of Toxoid Therapy*

Status at Beginning of Treatment	Cases
Completely healed	6
Frank bone lesions	23
Residual superficial skin ulcerations with no bone involvement	6
Superficial soft tissue abscess subsequent to a previously healed bone lesion	1
Soft tissue sinuses with no bone involvement	2

Dosage.—The dosage of the toxoid administered was the following: The first dose of 0.2 cc. of dilution 1 was increased by 0.2 cc. with each subsequent injection until 1 cc. of dilution 1 was reached. The next dose was 0.2 cc. of dilution 2 and increased by 0.2 cc. with each dose until the final dose of 1 cc. of dilution 2 was reached. The dose was then kept at that level for subsequent injections. All injections were made subcutaneously. At times when a patient presented a severe local reaction the same dose or a slightly smaller dose was administered on the subsequent occasion. The maximum dose was never over 1 cc. of dilution 2, and no modifications were made because of the patient's age. The time interval between injections varied from two to ten days and averaged about three days. An average of 17.9 injections was given per patient over an average of forty-five days. The minimum number of doses was five, while the maximum was thirty. The minimum duration of toxoid therapy in any case was twenty-two days, while the maximum was 130 days. The average total number of "units" administered was

12a. An experimental product obtained from Dr. E. F. Roberts of Lederle Laboratories, which was not put on the market.

13. Robinson, W.: Stimulation of Healing in Nonhealing Wounds by Allantoin Occurring in Maggot Secretions and of Wide Biological Distribution, J. Bone & Joint Surg. **17:** 267 (April) 1935.

14. Loehr, W.: Ueber die Lebertransalbehandlung (mit und ohne Gipsverband) bei frischen Verletzungen, Verbrennungen und phlegmonosen Entzündungen, Zentralbl. f. Chir. **61:** 1688 (July 21) 1934.

15. Walzer, Abraham, and Walzer, Matthew: Urticaria: II. The Experimental Wheal Produced on Normal Skin Through Internal Channels, Arch. Dermat. & Syph. **17:** 659 (May) 1928.

10,515. Three patients received less than 1,000 "units," while the maximum total dosage in any case was 24,300 "units."

SEROLOGIC CONTROL

The course of immunization of each patient was followed in the laboratory by the determination at varying intervals of the antihemolysin (antitoxin?) titers of the patient's serum. An initial antihemolysin titration was done in each case prior to the beginning of toxoid therapy, and from two to nine titrations were done during and after the course of treatment. The average number of titrations for each patient was five.

Titrations.—The antihemolysin titrations were originally done by determining that dilution of serum which just inhibited hemolysis of a twice washed 1 per cent suspension of rabbit erythrocytes by one minimum hemolytic dose of staphylococcus toxin, after incubation for one hour at 37 C. Subsequently a sample of the international standard staphylococcus antitoxin was obtained through the courtesy of Dr. Hartley of the National Institute for Medical Research, London,[16] and after suitable preliminary tests our serums were titrated in terms of that standard. Some of the serums were titrated directly against the standard while the titers of others were transposed to international units from the titers obtained by the original method. The titers recorded in this paper are in terms of the international unit.

The technical details of the titrations and of the preparation and standardization of toxin used in titrating in the terms of the international standard antitoxin have been presented in detail in a separate communication by Blair and Hallman.[17]

SEROLOGIC RESULTS

Titer Prior to the Administration of Toxoid.—Blair and Hallman [18] of the laboratory of the Hospital for Joint Diseases have already demonstrated in a series of eighty patients suffering from chronic osteomyelitis that the titers of serums of persons suffering from this disease generally fell prior to the administration of toxoid therapy within the range established as normal; namely, one international unit or less. Only one fifth of the serums of these individuals had an initial titer of three or more units, which is definitely above normal. The results obtained in the present series of cases of osteomyelitis are similar to those already reported by Blair and Hallman.[18] This is in direct contrast to those of Dolman,[8e] Murray [8f] and Gross [19] in a comparable group of cases. These authors found that the titers in this type of case were markedly above normal.

Titer After Administration of Toxoid.—We found a definite rise in titer in all of the thirty-eight cases following the administration of staphylococcus toxoid. This confirms the observations of Dolman and Murray in cases of osteomyelitis and of others in superficial staphylococcic infections. These workers have found that the titer increased usually from five to ten fold subsequent to the administration of from four to eight injections of toxoid.[20] In our series of thirty-eight cases the antihemolysin titers of thirty-one were increased from two to ten fold while the titers of nineteen were increased from five to ten fold, and the titers of the serums of the remaining seven patients were increased from twelve to thirty-four times. In every instance, however, the number of injections necessary to raise the titer of serums to their maximum was greater than has been reported by others. The maximum titer obtained in the serums of two patients was 28.8 international units. This represented an increase of 4.5 and 7 times the initial titers. The next highest titer was 17.7 units.

It had been previously observed that the titers obtained following toxoid therapy do not remain at the maximum level but drop to a level which is usually higher than the initial titer.[20]

We found a similar drop in titers. This occurred during the course of injections in nine patients and after the cessation of toxoid therapy in the remaining twenty-nine cases. The titers of four patients dropped to a level lower than the initial titers; the titers of two dropped to a level equal to the initial titers, and the titers of the remaining thirty-two dropped to a level higher than the original titers. The level finally reached in the majority of instances was from two to eight times higher than the initial titer. We found no relationship between the maximum titers obtained and the final levels to which they fell. Neither was there any relationship between the extent of the rise of titers and the final levels. We have found that in general the higher titers fell somewhat more precipitately than the lower titers.

Summary.—From the foregoing observations it may be concluded that:

1. The initial titer in the majority of our cases of chronic osteomyelitis was within the normal range of 1 international unit or less.

2. Subsequent to the administration of toxoid, the titers increased from five to ten fold or more in twenty-six cases and from two to ten fold in thirty-one of thirty-eight cases.

3. These results are similar to those reported in various types of staphylococcic infections, including osteomyelitis.

4. The number of injections of toxoid necessary to raise the titers to the maximum ranged from five to thirty and averaged 17.9. This is in contrast to other reported observations in which from four to eight injections brought the titers to a maximum level.

5. The titers in nearly all cases fell from the maximum level, which was above the initial titer.

6. The higher titers appeared to fall somewhat more precipitately than did the lower titers.

Comment.—Murray [8f] suggests on the basis of the high initial titer he found in seven cases of osteomyelitis in which the average was 11.7 units in contrast to the average of 0.96 unit in 108 cases of other than osteomyelitic staphylococcic infections that this titration might prove of diagnostic value in cases of osteomyelitis in which there is doubt as to the causative agents. Our experiences are not in agreement with this conclusion, for, as has already been pointed out by Blair and Hallman,[18] in only 20 per cent of eighty osteomyelitic serums was the titer above the normal. Furthermore, a similar ratio of high titers was found in staphylococcic infections other than osteomyelitis. On the basis of these data the accuracy of this diagnostic procedure would be rather inadequate.

16. Hartley, P. H. S., and Smith, M. L.: A Proposed International Standard for Staphylococcus Antitoxin, Quart. Bull. Health Organ., League of Nations, January 1935, p. 68.

17. Blair, J. E., and Hallman, Frances A.: Staphylococcal Antihemolysin: Titers Following Staphylococcal Toxoid in Chronic Osteomyelitis, Proc. Soc. Exper. Biol. & Med. **34**: 637-642 (June) 1936.

18. Blair, J. E., and Hallman, Frances A.: Staphylococcal Antihemolysin in Osteomyelitis and Other Staphylococcal Infections, Proc. Soc. Exper. Biol. & Med. **33**: 382 (Dec.) 1935.

19. Gross, H.: Ueber die Brauchbarkeit und den diagnostischen Wert der Antistaphylolysinreaktion, Klin. Wchnschr. **12**: 907 (June 10) 1933.

20. Dolman.[8e] Murray.[8f]

CLINICAL RESULTS

We find ourselves in agreement with Dolman that the evaluation of the effect of toxoid therapy or for that matter any therapy of chronic osteomyelitis is beset with many pitfalls because of the inherent characteristics of the disease.

Systemic and Local Reactions to Injections of Toxoid.—The first prerequisite of a therapeutic measure is that it should produce no harmful effects as a result of its application. In eleven of our thirty-eight patients and in two normal individuals who have submitted themselves to toxoid injections there were definite local and systemic reactions. The local reaction consisted of pain, tenderness and at times rather extensive areas of induration and redness, one of which necessitated local therapy in the form of wet dressings. One patient, following an injection, had a rise in temperature for several days. This patient had no active lesions at that time. One patient complained of "chilly" sensations on evenings following injections. A very fair number of these individuals complained of malaise, lethargy, fatigue, sensations of not feeling well and loss of appetite and, on several occasions, loss of weight. Those who complained of systemic symptoms did not look well, and a few of them had rings under the eyes. In several instances we felt obliged to discontinue toxoid therapy because of these symptoms. All these patients invariably reported sensations of well being and in a few instances of gain in weight after the cessation of the injections. The two normal individuals who submitted themselves to injections of toxoid experienced mild to severe local reactions, which were sometimes accompanied by fatigue.

A review of several reports of other investigators confirms our observations. Murray [8f] stated that out of 116 adequately treated cases ten presented local reactions, seven general reactions, twelve lethargy, and sixteen exacerbations. The significance or the character of the latter group was not amplified. Dolman reported that his group of normal laboratory workers presented reactions after toxoid injections varying "from the slightest local tenderness to a painful, red, swollen arm, with mild general malaise on the day following the injection." These reactions were, however, not sufficient to preclude the advisability of continuing with the toxoid. Dolman [8e] further reported that "many" patients had slight local reactions; in others it was more marked and sometimes lasted for three days. In 10 per cent there was mild headache, dizziness or nausea and fatigue. Very occasionally there was more marked swelling, slight fever and illness for a day or two. There have, however, been no serious reactions to toxoid reported.

In view of these observations, injections of toxoid are not altogether without ill effects, and occasionally the results may be somewhat disturbing. It should be recalled, however, that the administration of other biologic preparations is often accompanied by a reaction of much the same order as is encountered following the injection of staphylococcus toxoid. Nevertheless, if toxoid therapy is proved of definite value such untoward results would have to be tolerated.

Efficacy of Toxoid.—Further consideration of our data reveals that in eighteen of our thirty-eight cases new lesions developed during or soon after the course of toxoid injections. Two of these cases necessitated resaucerization of their affected bones. In one of these this procedure had to be applied when the patient's antihemolysin titer was near its maximum level of 28.8 international units. Another patient, with a persistent sinus which could not be opened wide because of anatomic considerations, developed an extensive and long lasting pyodermia and several extensive phagedenic ulcers on the affected as well as on the opposite limb, notwithstanding that he received 24,300 "units" of toxoid and that his antihemolysin titer had increased sixfold. In another case presenting multiple soft tissue and bone abscesses involving practically every part of the body, many new foci have developed up to the present time, notwithstanding the administration of 21,300 "units" of toxoid and a fivefold increase in the antihemolysin titer. In an additional instance toxoid did not prevent a midthigh amputation for a postoperative staphylococcic infection of a knee following an arthrodesis for tuberculosis even though the antihemolysin titer had risen to four times the original titer. Subsequently the titer rose sixteenfold but the healing of the stump was delayed over a period of three months because of a persistently stubborn infection of the operative wound. The new lesions in most of the other cases consisted of local abscesses, several of which occurred in instances in which there was no evident active lesion at the time of onset of toxoid therapy. Erosions of epithelium in healed cases of osteomyelitis were to all appearances not influenced by the action of toxoid.

I operated on a series of about 150 patients, who were submitted to maggot therapy. The only two postoperative mortalities sustained in this series occurred in individuals who were under toxoid therapy. I do not by any means attribute these deaths to the toxoid; nevertheless, I feel obliged to mention these instances to indicate the inadequacy of the toxoid to modify the course of these patients for the better. The following report is of special interest, for it presents an ideal instance for the testing of the efficacy of toxoid therapy:

CASE 1.—A white boy, aged 7 years, was admitted to the service of Dr. Samuel Kleinberg, Oct. 29, 1930, with an acute hematogenous osteomyelitis of the lower end of the tibia of several days' duration. The part was immediately incised and drilled, draining a small quantity of pus. The Orr therapy was instituted. The patient recovered from the acute phase and went on to the subacute phase of the disease. Dec. 3, 1934, the antihemolysin titer was 4.4 international units. Toxoid was then administered. After four injections the titer rose to 8.8 units. After nine additional injections, bringing the total dosage up to 5,390 "units" of toxoid, the titer rose to 15.5 international units. The last injection was administered Feb. 11, 1935; the total dosage of toxoid was 9,390 "units." On the 13th of the same month the antihemolysin titer fell to 14.4 international units and March 27 it had dropped to 8.8 international units. Notwithstanding the very satisfactory serologic response to toxoid therapy, the local lesion developed during the course of toxoid therapy into a very extensive and progressive involvement of the lower half of the tibia.

Further studies of our data reveal that the original titer had no relationship whatever with the severity or mildness of the local lesion. In addition, the serologic response was not in any way related to the clinical progress of the case. This is true of practically all our cases.

A study of the only other extensive report of toxoid in the treatment of a comparable number of cases of subacute and chronic osteomyelitis, namely that of Dolman,[8e] gives little comfort, for it is a statement of generalities without detailed information to make a clear evaluation possible. Dolman's general impression

is that of beneficial results, yet there is no clinical evidence presented on which he bases that impression. He states: "In a few children with several years' history of chronic osteomyelitis, one or more discharging sinuses healed over for the first time during or soon after the administration of a course of eight injections, and there have since been no recurrences. In other instances, sinuses healed following toxoid treatment but broke down again after a few weeks." These experiences are common occurrences in the hands of all surgeons and hardly form a basis for any special claim for any mode of therapy. Dolman further states: "In a few adults with chronic osteomyelitis of long standing very striking local improvement occurred; other similar cases showed little change." This also appears to me as insufficient for any claim for efficacy in the management of chronic osteomyelitis.

COMMENT

Emphasis should be placed on the lack of correlation between the serologic and the clinical results in this series of cases of chronic osteomyelitis. A high original titer did not indicate a regressing lesion, nor did a low titer indicate a progressing lesion. Furthermore a rise, no matter how great, in titer following toxoid therapy did not signify a healing lesion. Similarly, Dolman's observations of instances which apparently improved while others showed no improvement or, if they showed a primary improvement regressed while under observation, point to the same lack of relationship between the serologic and the clinical results. It therefore would seem rational to conclude from the foregoing that the rise in titer is not the deciding factor in the course of the disease and that the development of immunity against the various toxins encompassed in the toxoid has no effect on the local lesions. Furthermore, the rise in titer seems to indicate merely an inherent ability on the part of the patients to respond to the antigenic stimuli of the toxoid.

Recent studies on the pathogenesis of staphylococci have shown that the action of the invading microorganism is due to at least two outstanding characteristics: first, the ability to invade the host to produce purulent lesions and, second, to produce toxins. Thus one finds that Burky [21] has separated pathogenic staphylococci into two groups on the basis of this conception. One group, which he isolated from chronic indurated lesions of the skin and mucous membranes, was highly toxigenic with but little invasive capacity, while another group, which he isolated from "purulent lesions such as styes, osteomyelitis and lung abscesses," was markedly pyogenic with but little toxic producing capacity. Similarly, Gross [22] obtained his least toxic staphylococci in cultures from osteomyelitis. Our own studies confirm these results for our observations show that the majority of the strains from chronic osteomyelitis are not highly toxigenic.

A clinical consideration of the great majority of cases of chronic osteomyelitis reveals that the outstanding feature is not the toxemia but the purulent character of the lesion. On the other hand, in instances of acute osteomyelitis in which toxemia plays an important rôle, it may be possible to control the toxemia passively by the administration of antitoxin or actively by immunization with toxoid. This, however, has little effect on the invasiveness of the organism, and pyemia may not be checked. Thus Parish [23] expresses the opinion that antitoxin "is likely to be the most effective in cases in which toxemia is predominant. . . . It is a rational form of therapy, for theoretically, at least, a serum which neutralizes toxins impedes one of the most important modes of attack by the staphylococcus and thereby aids the natural defenses of the tissues. On the other hand, one has to admit that contradictory reports have been made as to its usefulness. Its effects on the invasive properties of the coccus has not yet been determined, and it cannot be expected to take the place of surgery in such conditions as osteomyelitis, and staphylococcal abscess of the kidney, although it may be a useful adjunct." Burky [21] has made a similar suggestion; namely, "the fact that an antitoxin can be produced suggests its use in cases of staphylococcus infections. However, the value of such therapy in (Burky's) group II (osteomyelitic) infections awaits proof . . . it is possible that the pathogenicity of these strains lies in some factor that antitoxin could not neutralize."

This is further borne out by the fact that in infections in which the toxigenicity of the infecting organism plays an important rôle, namely, superficial infections, toxoid therapy has been reported to be of definite benefit. In deep-seated infections, on the other hand, the stimulation of antitoxin (antihemolysin) production, by immunization with toxoid, has produced no beneficial effect on the course of the disease. In fact, some patients developed new lesions during the period of toxoid therapy. It should also be noted in this connection that an individual subject to recurrent furunculosis does not as a rule develop osteomyelitis. The reverse is also true.

It would therefore appear, from the foregoing considerations, that, if an attempt is to be made to induce immunity in patients with chronic osteomyelitis, the effort should be directed toward the establishment of resistance to the invasiveness of the organism rather than to the production of a purely antitoxic immunity.

SUMMARY

1. An attempt was made to immunize a series of thirty-eight patients suffering from chronic osteomyelitis by the administration of staphylococcus toxoid.

2. The progress of immunization was followed by the determination of staphylococcus antihemolysin (antitoxin) in the serums of patients.

3. Subsequent to the administration of staphylococcus toxoid the antihemolysin titers increased in all cases from two to thirty-four times the original titers.

4. The magnitude of the titer gave no indication of the clinical status of the case.

5. A rise in titer did not indicate a regression of the lesion.

6. A rise in titer did not prevent a development of new lesions in eighteen out of thirty-eight cases.

7. A rise in titer did not expedite the healing of existing lesions.

8. A rise in titer did not prevent the progression of old lesions. (Two cases necessitated resaucerization, one case came to amputation, and two ended fatally—the only instances in a series of more than 150 cases).

9. In a discussion of our observations it is suggested that the disappointing results obtained following the administration of staphylococcus toxoid in chronic osteomyelitis may be attributed to the fact that staphy-

21. Burky, E. L.: Studies on Cultures and Broth Filtrates of Staphylococci, J. Immunol. **24**: 93, 115, 127 (Feb.) 1933; **25**: 419 (Nov.) 1933.

22. Gross, H.: Die experimentellen Grundlager einer Serumtherapie der Osteomyelitis, Klin. Wchnschr. **12**: 1990 (Dec. 30) 1933.

23. Parish, H. J.: The Present Position of Serology in Relation to the Pathogenic Cocci, Brit. M. J. **2**: 277 (Aug. 12) 1933.

lococci causing this type of infection are of low toxigenicity and of high invasiveness. I believe that immunization in this type of infection should be directed toward the establishment of resistance to the invasiveness of the organism rather than to the production of a purely antitoxic immunity.

1 West Eighty-Fifth Street.

SYPHILITIC AND NONSYPHILITIC PERSONS ON THE FULTON COUNTY, GEORGIA, RELIEF ROLLS

A COMPARATIVE STUDY

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This study was made to determine the prevalence of syphilis among the unemployed in Fulton County, Georgia, on the FERA rolls, and to compare the chief complaints and physical condition of those men found to have syphilis with a given number of those not having syphilis and to determine whether syphilis has any effect on the physical capabilities of a man to earn a livelihood. The presence of the disease was determined by the blood Wassermann test.

It was the rule in Fulton County to subject every applicant applying for federal relief to a physical examination and give a medical work classification before assigning the applicant to any work project. We used a simple uniform medical terminology, examining from May 15, 1935, to Nov. 15, 1935, 6,911 applicants for relief rolls, of which number 1,311 had syphilis, an average of 18.9 per cent. In the Negro, 33.8 per cent of the men and 34.5 per cent of the women had positive Wassermann reactions; 7.1 per cent of the white men and 7.3 per cent of the white women had positive Wassermann reactions.

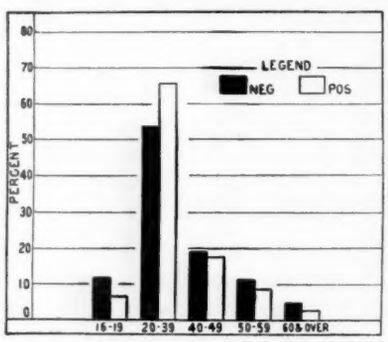

Chart 1.—Comparison by age.

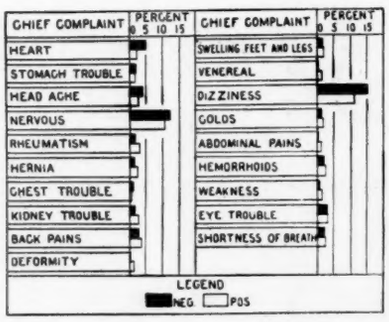

Chart 2.—Comparison by chief complaint.

Short medical histories, weights, heights and eye examinations with the Snellen chart were recorded by the nurses on the applicant's chart before he went into the examining room; there he was allowed to undress completely in a booth and come to the examining room when his name was called. Here he was asked if he was in good health or if anything hurt or bothered him. Any complaint made was listed under the title of chief complaint. We then proceeded to give him a thorough physical examination, recording all physical abnormalities. Following this blood for a Wassermann test was taken and the physician immediately gave him one of five medical work classifications, depending on the man's physical ability to work. The classifications are as follows:

A. Good physicial condition; capable of doing hard work.
B. Some defect found, such as hernia, hemorrhoids, slight heart trouble, mild hypertension, or debility because of age. Capable of doing light work or indoor work, not requiring much physical strength.
C. Some rather marked defect found, as heart trouble, hypertension, marked debility from age, or deformity. Very, very light work.
D. Not able to do any kind of work. (There is but little difference between C and D.)
LA, or Leave of Absence. Reserved for those with acute infections, injuries or some malady amenable to treatment in a relatively short period of time, such as colds, tonsillitis, venereal diseases or accidents. A leave of absence could be given a man for as long a time as the physician felt it should normally take him to recover; he would then report back for examination and classification. All men with a urethral discharge and sores on the genitalia were given leave of absence until well.

If the physician assigned a man to a work classification other than A, he stated his reason for so doing under the title of chief pathologic condition on the chart. For example, if a man had a bad heart and the examining physician felt that he was not able to work, he gave him the medical work classification of D and under chief pathologic condition listed "heart."

This study was made by going over the examinations of 545 men, white and colored, who had positive Wassermann reactions and tabulating the number of times each chief complaint occurred, each physical abnormality, the chief pathologic condition, the blood pressure and the medical work classification, then comparing them to the same tabulation of 1,000 men, white and colored, whose Wassermann reactions were negative. These thousand examinations were selected at random. Men were used because they lent themselves more readily for a complete examination and could be given more definite medical work classifications.

It is noteworthy that 67 per cent of those having syphilis (chart 1) were between 20 and 39 years of age and only 3 per cent were beyond 60, whereas 54 per cent of the nonsyphilitic were between 20 and 39 years and 5 per cent beyond 60 years.

Strangely enough the four major complaints, namely, dizziness, nervousness, headache and heart trouble, were complained of more frequently in the nonsyphilitic (chart 2), nearly all the other complaints being more frequent in the syphilitic. When the actual physical abnormalities were tabulated, however (chart 3), a greater percentage was found in the syphilitic in all except hydrocele and amputations. Two and one-half times as many perfectly normal men were found among those not having syphilis. It must be remembered that many of these physical abnormalities may in no way interfere with a man's ability to work; for instance, an applicant might have some decayed teeth, impaired vision and small varicose veins and still be able to do good work. Under the chief pathologic condition, however, are listed abnormalities of sufficient magnitude either to hinder or to keep a man from working (chart 4); here, as in the physical conditions, one finds much more that is pathologic in persons with syphilis.

Study of the comparative blood pressures from 16 to 19 years and then for each ten year period there-

This study was made possible through the FERA. Particular credit is given to Mr. W. W. Daniel and his co-workers for their invaluable assistance in the compilation of the statistics and to Mr. Allen Lilly-white, formerly connected with the local administrator, for his timely suggestions; also the administrators of county and state, who cooperated.

after did not reveal anything unusual in the different age groups past 20 years not shown in the composite chart (chart 5). The small 16-19 year age group is interesting because of the low and high pressures in those who are syphilitic and should have more study (chart 6).

Most important of the entire study is the comparative medical work classifications. In the 16-19 year age group (chart 7) one finds a few more of the boys able to do hard work in the nonsyphilitic column. Those youngsters in the C and D classifications were so assigned chiefly because of extreme youth or congenital abnormalities. The next age group, 20-39 years (chart 8), includes the largest number of men, the age that man should reach the height of physical endeavor. Here one notes seventy-eight per hundred of the nonsyphilitic able to do hard work, whereas only sixty-one per hundred of the syphilitic could do hard work, a difference of seventeen men. These men are not totally and permanently disabled because we find them in B, C and LA, either doing light work or recovering from some acute malady.

The 40-49 age group (chart 9) shows a shifting of those having syphilis to light work and leave of absence. The men from 50 to 59 (chart 10) normally carry hard and light work because of their advancing years. It is obvious that a great many men in their late fifties physically sound could not do hard work; hence we find fewer of the syphilitic in these two classifications and more of them in the C, D and LA classes, able to do little or no work.

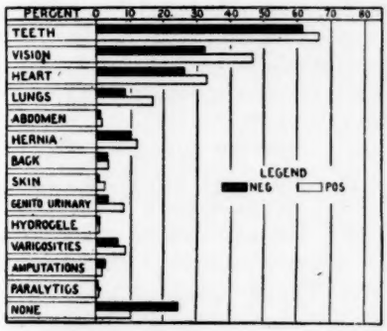

Chart 3.—Comparative physical conditions by medical examination.

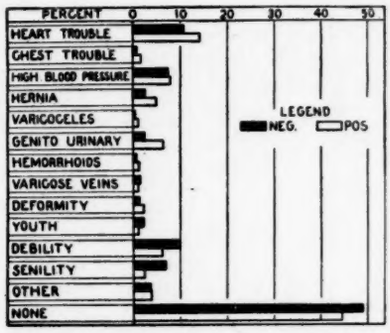

Chart 4.—Comparison by chief pathologic condition.

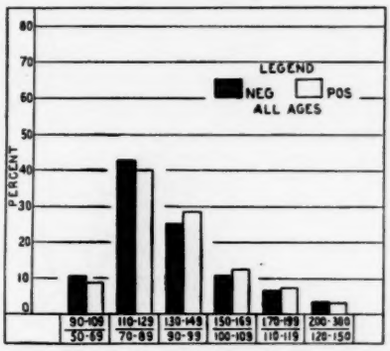

Chart 5.—Comparative blood pressures.

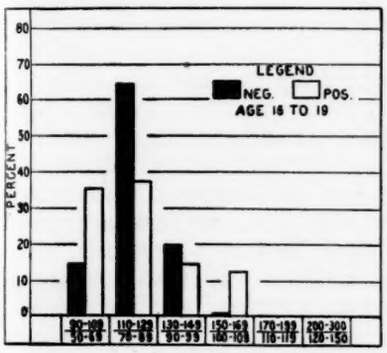

Chart 6.—Comparative blood pressures by age.

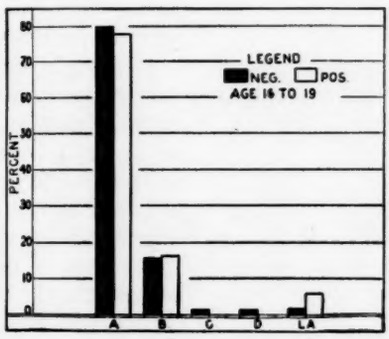

Chart 7.—Comparative medical classification by age (from 16 to 19).

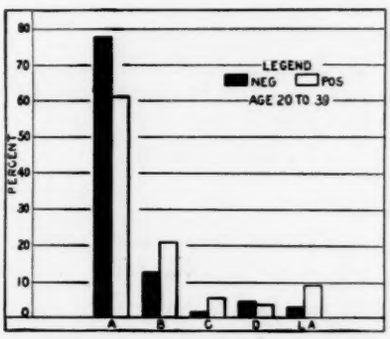

Chart 8.—Comparative medical classifications by age (from 20 to 39).

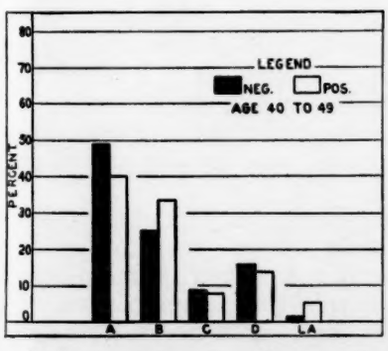

Chart 9.—Comparative medical classification by age (from 40 to 49).

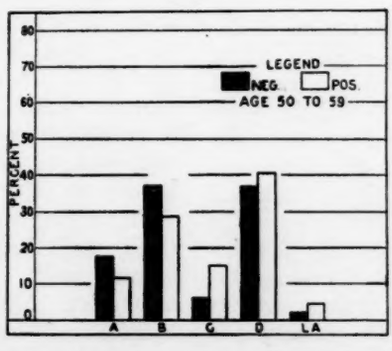

Chart 10.—Comparative medical classification by age (from 50 to 59).

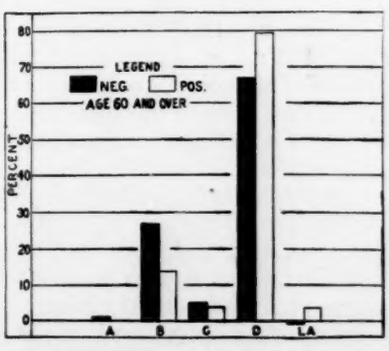

Chart 11.—Comparative medical classification by age (60 years and over).

COMMENT

Clinically, this study proves conclusively that syphilis may attach itself to any structure of the body. As to whether it attacks that part which has been made vulnerable by some other malady and on which it heaps its insult, or whether it alone is responsible for the increased amount of pathologic change found in the syphilitic, I am unable to say. Certainly there were some individuals who were hale and hearty in spite of syphilis and advancing years.

Be that as it may, if about 34 per cent of our Negroes and 7 per cent of our white persons have syphilis and of that number 17 per cent between 20 and 40 years

are not able to do competitive work, and 16 per cent of those past 50 years are not able to work at all, then syphilis is a serious disease from an economic standpoint. Certainly to be considered too is the comparatively rapid drop in the number of the syphilitic from 39 years to 60 years and over (chart 1). This rapid decrease can only mean that a large number having had syphilis have either died, been treated or are not able to report for examination.

No doubt one could select any disease and find a goodly number of persons not only suffering from it but disabled. There is no disease that I know of, however, found in such large numbers, that responds so beautifully to treatment as does syphilis, nor can I think of one that has a longer latent period before serious symptoms manifest themselves, thereby affording a golden opportunity for diagnosis and cure or at least an arrest of the disease.

CONCLUSIONS

1. No orderly train of symptoms could be found resulting from syphilis.
2. Clinically all physical abnormalities were more frequent in persons who had syphilis.
3. In the very young the blood pressure may be markedly affected, either low or high, and should have more study.
4. Syphilis very definitely handicaps a man in his struggle to earn a livelihood.
5. Syphilis is a serious problem, to us not only as physicians but as citizens of Fulton County, Georgia, and the nation.

Grand Theatre Building.

THE MEDICAL TREATMENT OF MÉNIÈRE'S SYNDROME

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In January 1861 at the Imperial Academy of Medicine of France, Prosper Ménière delivered a paper entitled "Memoir Concerning Lesions of the Internal Ear Giving Rise to the Symptoms of Cerebral Apoplectiform Congestion." This paper was important for two reasons: it was the first time that the syndrome of deafness and tinnitus accompanied by attacks of vertigo, vomiting and nystagmus had been related to the inner ear, and, secondly, it contained the description of an autopsy as a result of which generations of medical students have been taught that these attacks were due to hemorrhage into the labyrinth. Today it is realized that the pathologic anatomy is unknown. It has been impossible to localize the lesion in any one part of the auditory tract. Therefore many forms of therapy have been tried: lumbar puncture, quinine, mastoidectomy, labyrinthectomy and, finally, section of the vestibular portion of the eighth nerve. Of these the last named has been the most successful.

It was called to Furstenberg's [1] attention that dizziness was a common symptom of patients suffering from cardiovascular renal disease and that in them the water balance might be at fault. On examination of the literature he found Danish articles [2] describing the successful treatment of Ménière's syndrome by dehydration and a low salt diet in 150 of a series of 157 patients. With Lashmet's and Lathrop's assistance he undertook some exceedingly careful experiments to determine whether the electrolytes or the water in which they were excreted was the important factor. They concluded that sodium was the factor and that the addition of ammonium chloride to the diet prevented the storage of sodium. Fourteen patients were treated by the Ann Arbor workers. In their series sodium always precipitated an attack, while the elimination of sodium from the body gave complete relief.

Six patients from the neurologic outpatient department of the Boston City Hospital and six from that of the Massachusetts General Hospital have been placed on a low sodium diet with the addition of ammonium chloride. On this regimen, over periods ranging from six months to twenty-two months none of these patients have suffered a severe attack, although mild dizziness and a feeling of fulness in the head may remain. In four a lapse in therapy was followed by an attack. Two patients have been free from attacks, although therapy was discontinued after three months and one year respectively.

Although one sufferer from dizziness due to hypertension was relieved by a low sodium diet, four patients complaining of vertigo unaccompanied by deafness were not relieved by the diet and ammonium chloride.

It must be stressed that Ménière's is a definite syndrome. Many of the unsuccessful attempts at medical treatment have been due to faulty diagnosis. The symptoms of deafness and tinnitus, at least before an attack, are the two that are most commonly overlooked. These are just as much a part of the syndrome as vertigo and vomiting and must be present before the diagnosis can be established. The Bárány test is not of great assistance in diagnosis. Although some had hypoactive or hyperactive labyrinths, many of these patients gave normal reactions. In one patient the labyrinth was dead. In five patients, deafness of a mixed type was attributed to a previous otitis media; in one patient, to an otosclerosis; in five patients, nerve deafness alone was present; in one patient, deafness was present only before an attack.

According to expectations, many practical difficulties arose in keeping clinic patients—many of them foreigners with considerable language difficulty—on a strict diet. All of Furstenberg's fourteen patients were hospitalized for thirty days or more, while all the patients in this series were treated in the outpatient department. Sometimes two or more visits were necessary before a low sodium regimen was attained, but one great advantage in treating these patients is that a sufferer from true Ménière's syndrome is eager and ready to do anything in his power to avert attacks.

An unexpected source of sodium appeared in the course of this study. Since these patients had nausea or vomiting, it was quite natural that they should use sodium bicarbonate or compound effervescent powders. The apparently unsuccessful treatment of two patients was remedied by eliminating these medications.

Read before the Boston Society of Neurology and Psychiatry Nov. 19, 1936.
From the Department of Neurology, Massachusetts General Hospital, and the Neurological Unit, Boston City Hospital.
The author was assisted by Miss Dorothy Hale and Miss Elizabeth Fritz, of the Social Service Departments of the Boston City and Massachusetts General hospitals, in following up patients.

1. Furstenberg, A. C.; Lashmet, F. H., and Lathrop, F.: Ménière's Symptom Complex: Medical Treatment, Ann. Oto., Rhin. & Laryng. **43**: 1035 (Dec.) 1934.

2. Dederding, D.: Our Ménière Treatment, Acta oto-laryng. **16**: 404, 1931. Mygind, S. H., and Dederding, D.: Significance of Water Metabolism in General Pathology as Demonstrated by Experiments on the Ear, ibid. **17**: 424, 1932.

REPORT OF CASES

CASE 1.—A man, aged 54, seen Feb. 12, 1935, stated that yearly attacks of tinnitus, vertigo, vomiting and diplopia had begun five years before. A week before admission he had four in one week. There was mixed deafness and a dead labyrinth on the right. He was put on a diet plus 10 grains (0.6 Gm.) of ammonium chloride three times a day. August 14 he felt well and had no severe attacks. When the patient was seen Feb. 7, 1936, he had had two mild attacks, and the dose of ammonium chloride was raised. June 3 there had been no severe attack. December 15, one attack after exertion. He had not been taking a full amount of ammonium chloride or adhering strictly to diet.

CASE 2.—A woman, aged 51, seen March 22, 1935, stated that attacks of vertigo, vomiting and loss of consciousness had begun one year before. Tinnitus and bilateral mixed deafness were found. She was placed on the regimen. No attacks occurred until July 1935, when three weeks after discontinuing the diet and medication she had a severe attack. She returned to her diet and had had no attacks and was feeling very well March 1, 1936. When seen July 26 there had been no attacks. She discontinued the diet in March and when seen November 12 there had been no attacks.

*Furstenberg's Treatment and Diet**

1. Low salt content.
2. Medication. Ammonium chloride 3 Gm. with each meal, in capsules (six capsules each containing 7½ grains [0.5 Gm.] taken during the meal), three days on and two days off. The capsules should not be replaced by the chocolate coated or the enteric coated pills because the latter sometimes pass through the gastro-intestinal tract without being absorbed. The ammonium chloride can be given in this dosage for an indefinite time without injurious effects. We have had patients with nephritis receiving ammonium chloride in this manner for a period of five years.
3. Water intake unrestricted.
4. Diet, approximate neutral, low sodium diet.

Group A: The following foods may be taken daily:
1. Eggs, meat, fish and fowl as desired.
2. Bread as desired.
3. Cereal, one of the following: farina, oatmeal, rice, puffed rice or puffed wheat.
4. Potato and one or more servings of any of the following: (*a*) macaroni, (*b*) sphagetti, (*c*) rice, (*d*) corn, (*e*) cranberries, (*f*) prunes, (*g*) plums.
5. Milk as desired.
6. Vegetables and fruits daily of any fruit and of any vegetable not included in groups B and C as desired.
7. Butter, cream, honey, jellies, jams, sugar and candy permitted as desired.
8. Tea and coffee as desired.

Group B. Foods to be avoided: All salt meats and fish, or bread, crackers and butter prepared with salt. Carrots, clams, condensed milk, raisins, caviar, cowpeas, olives, spinach, cheese, endive, oysters.

Group C. Foods to be taken no more than twice weekly: Lima beans, beets, buttermilk, cantaloupe, cauliflower, celery, chard, dried coconut, dried currants, dates, figs, horseradish, kohlrabi, limes, muskmelon, peanuts, peaches, mustard, pumpkin, radishes, rutabagas, strawberries, turnips, turnip tops, watercress.

* Contains about 87 milliequivalents of sodium.

Note: All food to be prepared and served without salt.

Preparations containing sodium to be avoided: Sodium salicylate, bicarbonate, bromide, tartrate, iodide, nitrite, phosphate, thiosulfate, benzoate, sodium phenobarbital and amytal, compound efferverscent powders, potassium and sodium tartrate and baking powder.

CASE 3.—A man, aged 62, seen May 12, 1935, had had attacks of vertigo once a month for one year, vomiting and loss of consciousness. The left ear felt closed. He had arteriosclerosis and hypertension. He was given the full regimen. June 25 he vomited ammonium chloride so he stopped it. August 6 he was losing weight on a salt-free diet. There had been no attacks. He was taken off the diet. October 1 he had gained weight and felt well. Jan. 4, 1936, he reported that he had had an attack October 21. May 25 he reported that he had had many attacks. He is now trying a low sodium diet again but Jan. 18, 1937, reported many attacks.

CASE 4.—A man, aged 59, admitted May 15, 1935, had had attacks of tinnitus, vertigo and unconsciousness for three years. There was old chronic catarrhal otitis media, bilateral mixed deafness and past pointing to the right. The regimen was started. June 5 the condition was improved. There had been no attacks. October 4 there had been no attacks. The patient had ceased to take ammonium chloride but was on a fairly salt-free diet. March 25, 1936, he complained that his legs were giving out from under him. There was no mention of attacks. May 27 he stated that he had two types of attacks now once or twice a month, vertigo and sudden weakness in the legs. He had been eating salt and had taken compound effervescent powders for years. He was given the low sodium diet again. December 4 he reported that no attacks had occurred. Deafness has increased.

CASE 5.—A man, aged 64, seen May 20, 1935, complained of attacks of vertigo. In September 1933 mastoidectomy was done on the right and section of the right eighth nerve was done one week later. There had been no change in attacks since. He was placed on a salt-free diet and ammonium chloride 15 grains (1 Gm.) three times a day. July 15, 1935, the condition was better. There had been no attacks. May 13, 1936, there had been no attacks since he was placed on the diet. He took ammonium chloride for only from four to six weeks. He complained of deafness in the right ear and tinnitus. He ate bread and butter containing salt, but otherwise he did not use it. He was given a diet sheet. November 15 he felt a little unsteady.

CASE 6.—A man, aged 38, seen Aug. 13, 1935, had his first attack in June; five had occurred since that time. He complained of vertigo, vomiting, mixed deafness and perforated drum of the left ear. The Bárány test was negative. He had lost 40 pounds (18 Kg.) and was placed on the regimen. October 21 he reported no attacks. The condition was much improved. He was gaining weight. July 14, 1936, he had had no attacks. He went off the regimen in November 1935.

CASE 7.—A woman, aged 37, seen Oct. 24, 1935, complained of attacks of vomiting and vertigo. She was placed on a diet plus 4 Gm. of ammonium chloride a day, by the Waltham Hospital, to which she had been admitted in May 1935. She had no attacks until September, when she had omitted ammonium chloride for a month. There was nerve deafness of the right ear and a hypo-active labyrinth. She was given 3 Gm. of ammonium chloride three times a day after meals, three days on, two days off. Jan. 14, 1936, she reported that there had been no attacks. She felt better than she had for years. April 15 she felt very well and reported no attacks. November 10 she had had no attacks.

CASE 8.—A man, aged 48, seen Nov. 8, 1935, had had one or two attacks of vertigo and falling daily and then none for several days since March. There was running of the ear one year before, mixed deafness, more in the left ear, tinnitus and staggering. He had arteriosclerosis. The blood pressure was 180 systolic, 110 diastolic. There was mild Parkinson's syndrome. He was given the regimen. December 12 he felt much stronger and was walking well. There had been no severe attacks, only one or two minor ones. May 6, 1936, he reported one moderately severe attack in February while shoveling snow. He had been eating WPA meat containing sodium. He had headaches. August 12 he had had no attacks and had gained 8 pounds (3.6 Kg.) since November 1935. December 18 he was feeling very well. No attacks had occurred.

CASE 9.—A woman, aged 45, seen Nov. 27, 1935, had had tinnitus, vomiting and vertigo which lasted one day, two years before. The preceding June she had another attack and had not felt herself since that time. She had five more attacks at intervals of two weeks. She had been treated for chronic catarrhal otitis media for many years and bilateral mixed deafness. She was placed on 1.5 Gm. of ammonium chloride three times a day after meals, three days on and two days off, and a low sodium diet. April 1, 1936, she reported no attacks. She felt well. Tinnitus was improved slightly. May 13 she felt very well and had had no attacks. When she was seen in September and again in January 1937 no attacks had occurred.

CASE 10.—A man, aged 42, seen Dec. 3, 1935, had had onset of attacks of tinnitus, vertigo and nausea six years before. Now he was having them once a week. His father was deaf and had similar attacks. There was mixed deafness, more on the right. He was unable to work or drive a car. He was placed on a full dose of ammonium chloride and a salt free diet. December 17 he stated that he had one attack the day after he started the diet. He was driving a car and feeling well. There was a little transitory dizziness. Jan. 14, 1936, he reported that he had had two attacks, one the day after eating a Christmas dinner containing salt and one after a dose of sodium bicarbonate. At the time of examination he was feeling well. April 1 he had one mild attack. He was feeling well and was driving a postoffice truck. July 7 he reported that he had discon-

tinued his diet for two weeks and had a very severe attack June 14, in which he lost consciousness, and has not felt well since. He is back on the diet. In August he felt well. There had been no attacks. In January 1937 he was feeling well. He had had two brief attacks in spite of a full regimen. He had been taking potassium chloride also.

CASE 11.—A man, aged 59, seen Dec. 19, 1935, had had four attacks of tinnitus, vomiting and vertigo during the past year. The last one was December 4. There was nerve deafness. He was given the regimen. Jan. 23, 1936, there had been no attacks but a little dizziness at night. May 26 he had had no attacks and had lost 10 pounds (4.5 Kg.).

CASE 12.—A man, aged 49, seen May 7, 1936, complained that two years before he had had deafness and tinnitus of the right ear. Eleven days before examination there was a sudden attack of vertigo to the right with no vomiting. Tinnitus ceased two years before. Lying on the right side would bring on an attack. Nerve deafness was present. The regimen was started. May 21 there had been no severe attacks. He could now lie on the right side. There was some tinnitus of the left ear. June 30 there had been no attacks. He had lost 16 pounds (7.3 Kg.) and felt that pills were hard on the stomach. Ammonium chloride was reduced to three 5 grain (0.3 Gm.) pills with each meal. July 21 he reported one attack of vertigo, after which he returned to the full dose of ammonium chloride. August 26 he felt well. There had been no attacks.

SUMMARY

Severe attacks of vertigo and vomiting in twelve patients suffering from deafness and tinnitus have ceased under the medical treatment described.

412 Beacon Street.

PROTEIN, SALT AND FLUID CONSUMPTION OF 1,000 RESIDENTS OF NEW YORK

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Various workers in nutrition have stated that a daily protein intake of from 75 to 100 Gm., a daily salt intake of from 2 to 4 Gm.[1] and a fluid intake of from 1,000 to 2,000 cc. are suitable or optimal components of an adequate diet. In the United States particularly it has been believed that most people eat from 75 to 100 Gm. of protein daily.[2] Von Voit [3] suggested 118 Gm. of protein as a desirable daily intake. McLester [4] favors 100 Gm. daily for stamina and vigor. Studies on the twenty-four hour urines which yielded information for the urea, salt and fluid excretion have been made since 1920 on normal individuals who appeared for health examination. These studies provide material for an analysis of the habitual diet of residents of New York City. The study comprises 1,000 such individuals, normal so far as they knew, who came for a "check up" because of their interest in a "health examination," or because a relative had been found to have diabetes or hypertension or for some such reason. From this study were omitted all cases that presented diarrhea, edema or any illness other than a hypertension first made known as a result of this examination. While the subject was on his usual diet there was obtained in each case (1) the volume of urine in twenty-four hours, (2) the sodium chloride excretion, (3) the urea excretion, (4) the hemoglobin and red blood cell count, (5) the blood pressure, (6) the blood urea nitrogen, (7) the blood uric acid, (8) chemical and microscopic analysis of the urine, and in most cases (9) the blood sugar, (10) the blood cholesterol and (11) the blood chlorides.

The data are presented as follows:

1. The protein intake of group A (563 normal individuals), group B (298 individuals who, although they did not know it before this study, showed an elevation of blood pressure over 145 systolic, 90 diastolic in younger people and over 150 systolic, 96 to 100 diastolic in older people), and group C (139 individuals who showed for the first time to their knowledge not only an elevation of blood pressure but also a blood urea nitrogen of from 20 to 40 mg. per hundred cubic centimeters).
2. The salt intake of groups A, B and C.
3. The fluid intake of groups A, B and C.

METHOD

The determination of the amount of protein, salt and fluid intake was based on the nitrogen, sodium chloride and total fluid output in the twenty-four hour urine. This remains the most feasible laboratory method since in normal individuals, especially when a large series is studied, slight positive balances in some subjects are offset by negative balances in others. In previous observations it was found that the urea nitrogen as determined by the hypobromite method was really equivalent to the total urinary nitrogen.[5] Consequently the values obtained by the hypobromite method were regarded as representing total nitrogen and will be so termed in the subsequent discussion.

The sodium chloride in the urine was estimated according to the method of Volhard.

In the calculations of the protein intake from the urinary nitrogen, allowances were made for nitrogen loss in the feces. Lusk,[6] Mosenthal,[7] Peters and Van Slyke [8] and others have shown that only from 6 to 10 Gm. of protein (from 8 per cent to 10 per cent of the protein eaten) is lost in the stool. Thus the computations based on urinary nitrogen plus 10 per cent for nitrogen lost in the stool furnish a satisfactory formula for estimating protein consumption.

The calculation for protein intake is as follows: Urine urea grams (as obtained by hypobromite method) $\times$ 0.46 (nitrogen comprises 46 per cent of urea) equals urine nitrogen. Urine nitrogen $\times$ 6.25 equals amount of protein represented by the urinary nitrogen (nitrogen is 16 per cent of protein). These two steps may be combined by multiplying the urine urea grams by 2.87 (0.46×6.25 equals 2.87). If to the factor 2.87 is added one tenth (0.28) to represent the one tenth of protein nitrogen of the intake that is lost in the stool, the factor is approximatley 3. Hence the twenty-four hour urine urea figure multiplied by 3 yields the amount of protein represented in the urine and stool. It should be borne in mind that the calculations used in this study have allowed for the protein of the stool.

With regard to estimations of the fluid intake on the basis of urinary output, Soderstrom and Du Bois [9]

1. McLester, J. S.: Nutrition and Diet in Health and Disease, Philadelphia, W. B. Saunders Company, 1929, pp. 99, 203 and 443.
2. Lusk, Graham: Science of Nutrition, Philadelphia, W. B. Saunders Company, 1928, p. 457.
3. von Voit, Carl: Handbuch der Physiologie, Leipzig, L. Hermann, **6**: 519 (pt. 1) 1881.
4. McLester: Nutrition and Diet in Health and Disease, p. 214.
5. Mosenthal, H. O.: Renal Function as Measured by Elimination of Fluids, Salt and Nitrogen, and the Specific Gravity of the Urine, M. Clin. North America **4**: 209 (July) 1920.
6. Lusk: Science of Nutrition, p. 53.
7. Mosenthal, H. O.: Observations on the Succus Entericus, J. Exper. Med. **13**: 319, 1911.
8. Peters, J. P., and Van Slyke, D. D.: Quantitative Clinical Chemistry, Baltimore, Williams & Wilkins Company **1**: 270, 1931.
9. Soderstrom, G. F., and Du Bois, E. F.: The Water Elimination Through Skin and Respiratory Passages, Arch. Int. Med. **19**: 931 (May, pt. 2) 1917.

cite the fact that when 1,894 cc. of water is taken the output is 1,750 cc. (a difference of 144 cc.), so that for practical purposes the urinary fluid output may be taken as approximately the fluid intake, particularly when a large series is studied in which positive balances counteract negative balances.

The specimens of urine were collected without difficulty. Ordinary traveling bags were used containing eight wide-mouthed 20 ounce bottles in which each urine specimen was voided separately. The subjects followed their routine occupations, ate their usual meals and kept a record of their food and fluid intake during the twenty-four hour period of observation.

TABLE 1.—*Protein Intake by One Thousand Subjects*

Amount of Protein, Gm. per Day	Group A 563 Normal Individuals		Group B 298 Subjects with Hypertension		Group C 139 Cases of Hypertension and Nitrogen Retention	
	No. of Cases	Percentage of Group	No. of Cases	Percentage of Group	No. of Cases	Percentage of Group
20 or less	55	9	42	14	...	..
21 to 42	293	52	128	43	87	62
43 to 60	159	28	69	23	35	25
61 to 75	16	2	45	15	13	9
Over 75	40	7	14	4	4	3
Quota of group eating 42 Gm. or less of protein per day	348	61	170	57	87	62
Quota of group eating 60 Gm. or less of protein per day	507	89	239	80	122	87

TABLE 2.—*Protein Eaten by Group A: 563 Normal Individuals (280 Males, 283 Females)*

	Cases	Per Cent	
20 Gm. or less	55	9+	89% ate 60 Gm. or less of protein daily
21 to 42 Gm.	293	52	
43 to 60 Gm.	159	28+	
61 to 75 Gm.	16	2+	
Over 75 Gm.	40	7+	

PROTEIN INTAKE

Table 2 shows that 9 per cent of the subjects in group A ate 20 Gm. of protein daily, or less than half the so-called 45 Gm. "minimal" protein intake; 61 per cent of these normal subjects ate 42 Gm. or less of protein daily; 89 per cent were eating 60 Gm. or less of protein daily. Only forty subjects, 7 per cent of the group, ate 75 Gm. or more of protein daily. These figures for protein consumption must appear surprising when it is shown that half the group ate less than what is felt to be an adequate minimal protein allowance, and only 7 per cent ate the 75 to 100 Gm. that has been advocated as the more fitting daily ration (tables 1 and 2).

Denis and Borgstrum,[10] Brooks [11] and Beard,[12] working with a large number of male medical students who had an ample supply of food and could eat as they pleased, showed that the protein consumed daily was about 71 to 79 Gm. for a person weighing about 70 Kg. Lusk [13] felt that a great number of medical students in New York City do not have an output of over 12 Gm. of nitrogen daily and believed the average protein intake of these students to be about 75 Gm. daily.

The data presented in this study coincide with those of Hetler,[14] of Sherman [15] and of Mendel.[16] Hetler,[14] in studies of the women of the Iowa State College in 1927, found that these subjects would take as high as 70 Gm. of protein daily but more often would consume only from 25 to 40 Gm. From studies of the twenty-four hour urine in 1932, Hetler concluded that the average nitrogen excretion was 7.69 Gm., representing 48 Gm. of protein. Sherman [15] reported on 109 experiments indicating an average of 44 Gm. of protein and ranging from 21 to 65 Gm. Mendel [16] in 1932 said:

> In health, the nitrogen content of the kidney output furnishes a reliable index of the nitrogenous (or protein) intake. During the nineties of the last century the estimated protein intake, after due allowance for fecal loss of nitrogen generally approximated an average of at least 100 Gm. (16 Gm. N × 6.25) a day. In the course of the years, these annually secured estimates are showing lower averages. Other teachers have had similar experiences. The newest figures of Hetler on young women in Illinois studied during the years 1928-1930 averaged 7.7 Gm. of nitrogen (equivalent to about 50 Gm. of protein metabolized) daily.

TABLE 3.—*Protein Eaten by Group B: 298 Individuals Who Were Found to Have Hypertension Which They Did Not Suspect (118 Males, 180 Females)*

	Cases	Per Cent	
20 Gm. or less	42	14+	80% ate 60 Gm. or less of protein daily
21 to 42 Gm.	128	43	
43 to 60 Gm.	69	23	
61 to 75 Gm.	45	15	
Over 75 Gm.	14	4+	

TABLE 4.—*Protein Eaten by Group C: 139 Subjects Who Were Found to Have Hypertension and a Blood Urea Nitrogen of 20 to 40 Mg. (82 Males, 57 Females)*

	Cases	Per Cent	
21 to 42 Gm.	87	62	87% ate 60 Gm. or less of protein daily
43 to 60 Gm.	35	25	
61 to 75 Gm.	13	9+	
Over 75 Gm.	4	3—	

TABLE 5.—*Summary of Protein, Salt and Fluid Intake of One Thousand New York City Residents*

	Number of Cases	Percentage
I. Protein intake, Gm. per day		
20 or less	97	10
21 to 42	508	51
43 to 60	263	26
61 to 75	74	7
Over 75	58	6
II. Salt intake, Gm. per day		
4 or less	50	5
4 to 8	416	42
Over 8	534	53
III. Fluid intake, cc. per day		
1,000 or less	253	25
1,000 to 1,500	357	36
Over 1,500	390	39

It has been pointed out by many workers that a low protein ration is not conducive to general health or to mental or physical efficiency. "Nutritional" edema, fatigue, anemia, cloudy swelling of vital organs, lack of resistance to infection, pellagra and other ill effects have been cited.

10. Denis, W., and Borgstrum, P.: Study of the Effect of Temperature on Protein Intake, J. Biol. Chem. **61:** 109 (Aug.) 1924.
11. Brooks, F. P.: Protein Intake of Medical Students, Am. J. Physiol. **89:** 403 (July) 1929.
12. Beard, H. H.: Protein Intake of Medical Students, Am. J. Physiol. **82:** 577 (Nov.) 1927.
13. Lusk: Science of Nutrition, p. 455.
14. Hetler, R. A.: Protein Intake and Basal Metabolism of College Women, J. Nutrition **5:** 69 (Jan.) 1932.
15. Sherman, H. C.; Gillett, L. H., and Osterberg, E.: Protein Requirements of Maintenance in Man, J. Biol. Chem. **41:** 97 (Jan.) 1920.
16. Mendel, L. B.: Changing Diet of the American People, J. A. M. A. **99:** 117 (July 9) 1932.

It is profitable to compare the extremes among this normal group A as to its use of protein. The "low protein group": (1) females constituted most of this group; (2) low or low-normal blood pressure readings are encountered frequently, yet the "high protein" eater does not have a high blood pressure; (3) underweight occurs frequently; (4) mild secondary anemia is common; (5) the blood urea nitrogen is often found to be from 8 to 10 mg. per hundred cubic centimeters as compared to from 12 to 15 mg., the standard normal.

TABLE 6.—*Salt Eaten by Group A: 563 Normal Individuals*

	Cases	Per Cent
Less than 4 Gm.	27	5—
4 to 8 Gm.	211	37
Over 8 Gm.	325	57

TABLE 7.—*Salt Eaten by Group B: 298 Individuals Who Were Found to Have Hypertension Which They Did Not Suspect*

	Cases	Per Cent
Less than 4 Gm.	15	5
4 to 8 Gm.	133	44
Over 8 Gm.	150	50

TABLE 8.—*Salt Eaten by Group C: 139 Subjects Who Were Found to Have Hypertension and Blood Urea Nitrogen of from 20 to 40 Mg.*

	Cases	Per Cent
Less than 4 Gm.	8	6
4 to 8 Gm.	72	52
Over 8 Gm.	59	42

The "high protein group": (1) males comprised most of this group; (2) the blood pressure is not elevated; (3) these individuals are of average weight, though very rarely overweight is noted; (4) no anemia is demonstrated and rarely a high red blood cell count is seen (e. g., 6,480,000); (5) the blood urea nitrogen figures in a few cases are the upper limit of normal; e. g., from 15 to 18 mg. per hundred cubic centimeters. Yet high protein feeding seems, in the cases comprising this study, to have less effect in keeping the blood urea nitrogen at the high normal figure than has a low water excretion. Thus, while the "low protein eater" tends toward a low blood pressure and a low hemoglobin percentage, the "high protein eater" has no increased blood pressure and his hemoglobin is normal.

Table 3 shows that 57 per cent of the subjects in group B (170 cases) ate 42 Gm. or less of protein daily. This is a close approximation to the 61 per cent of the normal group, who ate a similar low protein ration. Only 4 per cent of these hypertensive persons ate 75 Gm. or more of protein daily. When these 298 subjects of essential hypertension with no impairment of renal function are considered, it is found that these people, if left to their own choice, on their habitual diet since they were unaware of an existing hypertension, were eating practically the same amount of protein as nonhypertensive persons. The same was found to be true of their salt and their fluid intake.

Many of the patients found to have hypertension were seen several times in the course of the years over which this study was made, some of them having followed a low protein diet for periods of from three months to a year. There is no evidence to show that a low protein diet will materially reduce the blood pressure. In the very few instances in which some appreciable drop in blood pressure occurred, protein and total diet restriction had been extreme and had resulted in anemia, undernutrition and general weakness. In several cases low protein intake by patients with hypertension was compensated by an excessive carbohydrate intake to satisfy hunger, which resulted in an increase of weight, thereby handicapping the patient.

Table 4 shows that even the hypertensive person with slight renal insufficiency unknown to the patient does not differ widely from the normal as to the protein content of his diet. The same is true of the salt and fluid intake.

It might be urged that nitrogen retention in these subjects may have caused a low urinary urea excretion so that the protein intake estimations for this group may be low. However, ninety-four out of this group of 139, or 67 per cent of the total, had blood urea nitrogen figures ranging from 20 to 25 mg. per hundred cubic centimeters or but slightly above the average normal; their urinary urea output and, by computation, their protein intake fell within the same range as those of the normal subjects, the hypertensive subjects with normal blood chemical changes and the hypertensive subjects with blood urea nitrogen figures of from 26 to 40 mg. per hundred cubic centimeters.

SALT INTAKE

As shown in table 6, 57 per cent of the subjects in group A ate over 8 Gm. of salt daily; eight individuals ate over 20 Gm. of salt daily, two of these taking as high as 40 Gm. a day (five of these eight subjects were overweight). The "low salt eaters" were chiefly females; the "high salt eaters" were mainly males. Among the "high salt eaters" there was a tendency toward a high normal blood urea nitrogen (from 15 to 18 mg. per hundred cubic centimeters) and a high normal blood uric acid (from 3.5 to 4.5 mg. per hundred cubic centimeters).

Six persons of group C ate from 18 to 28 Gm. of salt daily.

TABLE 9.—*Fluid Taken by Group A: 563 Normal Subjects*

	Cases	Per Cent
Less than 1,000 cc.	152	27
1,000 to 1,500 cc.	185	33
Over 1,500 cc.	226	39

TABLE 10.—*Fluid Taken by Group B: 298 Cases of Hypertension*

	Cases	Per Cent
Less than 1,000 cc.	71	24
1,000 to 1,500 cc.	107	36
Over 1,500 cc.	120	40

TABLE 11.—*Fluid Taken by Group C: 139 Cases of Hypertension with Blood Urea Nitrogen Figures of from 20 to 40 Mg.*

	Cases	Per Cent
Less than 1,000 cc.	30	22—
1,000 to 1,500 cc.	65	47
Over 1,500 cc.	44	30+

FLUID INTAKE

Among the normal individuals, the "high fluid" consumers may be compared with the "low fluid" users. The "high fluid" normal: (1) males make up the major-

ity of this group; (2) the group is equally divided as to obese and thin persons; (3) the blood urea nitrogen is low normal. There is no relation between high fluid and high salt intake. The "low fluid" normal: (1) females comprise most of this group; (2) obesity is often present; (3) there is a fair incidence of the upper limit of normal blood urea nitrogen (from 15 to 18 mg. per hundred cubic centimeters) and of the upper normal limit of blood uric acid (from 3.5 to 4.5 mg.). The relatively high blood urea nitrogen and uric acid in persons who drink but little fluid is interesting in view of the fact that there has been noted a slight increase in the nitrogen elimination if copious amounts of water are taken. This is thought by Hawk [17] to demonstrate the fact that water drinking actually induces increased protein metabolism and is not to be thought of as merely a "washing out" process but rather as a form of "specific dynamic action."

Fluid taken by group B (table 10) is essentially the same as by group A (table 9). It is to be noted that 1,500 cc. or more of fluid was taken by only 30 per cent of the subjects in group C (table 11), as compared to 40 per cent in groups A and B. Whether the slight nitrogen retention of this group is explainable, at least for some of its members by their low fluid intake or whether the two results are merely a coincidence is debatable. It is difficult to see why nitrogen retention of from 20 to 40 mg. per hundred cubic centimeters (in most cases from 20 to 25 mg.) would cause a low fluid output, since urea is an excellent diuretic. It must be noted, as has already been pointed out, that the normal individuals who take little fluid manifested high normal blood urea nitrogen.

SUMMARY AND CONCLUSIONS

1. It was felt from this study of 1,000 cases that the minimal requirement in a study of protein, salt and water consumption is the twenty-four hour urine sample. The patient's statement and even his record of food consumed may be very misleading. Thus we may cite a patient with Bright's disease (not included in this series) who believed himself to be on a low protein diet but who was found to be deriving more than 100 Gm. of protein daily from bread, cereals and cheese.

2. Many people eat less than 45 Gm. of protein daily. Sixty per cent of 1,000 subjects in this study were found to be eating 42 Gm. or less of protein daily (table 5). The evil effects of such a course have been pointed out.

3. The majority of the individuals studied were found to take a low protein (42 Gm. or less), moderately high salt (from 4 to 8 Gm. or more) and moderate fluid (1,000 cc. or more) ration.

4. There is no relation between protein, salt and water intake.

5. While the normal individual eating a low protein diet tends to have a low blood pressure and a low hemoglobin percentage, the normal person eating a high protein diet has no increased blood pressure and his hemoglobin is normal.

6. The high protein diet has less effect in raising the blood urea nitrogen than has a low fluid intake.

7. People with hypertension do not habitually eat more protein or more salt than normal persons. There is no evidence to show that a low protein diet, followed by a hypertensive subject, will materially reduce the blood pressure provided there is no anemia.

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17. Hawk, quoted by McLester,[1] p. 29.

DIVINYL ETHER

A REPORT OF ITS FURTHER USE AS A GENERAL ANESTHETIC

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PHILADELPHIA

In 1934 we [1] reported experimental and clinical observations on the use of divinyl ether as a general anesthetic. At that time our experience was based on the use of divinyl ether in 461 patients. We were led to conclude that "from the standpoint of induction, maintenance and recovery the anesthetic is satisfactory. . . . Its exact position in relation to the other general anesthetics now being used will have to await a more extensive clinical experience."

The use of the anesthetic has been extended to a number of the clinical departments of the hospital, and in certain of them it has become the anesthetic of choice when general anesthesia is required. The data in this paper have been obtained from 2,675 anesthetizations. This is by far the largest series reported. We believe that it is now possible more clearly to define the usefulness of this substance as an anesthetic agent.

METHOD

In our first series of 461 patients the open drop method was used in about 90 per cent of the patients. In approximately 10 per cent it was administered in conjunction with nitrous oxide and oxygen. In the present series divinyl ether was administered by the open drop method in 2,266 instances (84 per cent) and by the closed method, that is, with nitrous oxide and oxygen, or more usually with oxygen alone, to 409 patients (15 per cent).

We believe that for short anesthetizations the method of administration is unimportant, provided, when the open drop method is employed, the anesthetic is administered through only a few layers of loosely fluffed gauze. For periods of anesthesia exceeding one-half hour it is best that the anesthetic be volatilized with oxygen. This should be done for two reasons; first, the anesthetic is so volatile that a considerable amount of it is lost by evaporation when the open drop method is employed, and, second, our laboratory investigations have convinced us that the use of a plentiful supply of oxygen with the anesthetic greatly reduces the incidence of liver necrosis, at least in the dog.[2]

With either method the anesthetist must exercise due caution lest he exceed the concentration in the blood necessary for anesthesia. The anesthetic concentration in the blood of man for surgical anesthesia with good abdominal relaxation is approximately 18 mg. per hundred cubic centimeters, while the concentration for extra-abdominal operations when marked muscular relaxation is not required is less than this figure, concentrations of 11 mg. per hundred cubic centimeters having proved satisfactory.

The concentration in the blood necessary for surgical anesthesia is less than that required for chloroform

From the Hospital of the University of Pennsylvania.

1. Goldschmidt, Samuel; Ravdin, I. S.; Lucke, Baldwin; Muller, G. P.; Johnston, C. G., and Ruigh, W. L.: Divinyl Ether, J. A. M. A. **102**: 21 (Jan. 6) 1934.

2. Goldschmidt, Samuel; Ravdin, I. S., and Lucke, Baldwin; J. Pharmacol. & Exper. Therap. **59**: 1 (Jan.) 1937.

anesthesia and approximately the same as is necessary when cyclopropane is used.[3] The lethal blood concentration in the dog is 68 mg. per hundred cubic centimeters. We do not know what this figure may be in man. However, since the anesthetic concentration in the dog was 28 mg. per hundred cubic centimeters, which is higher than for man, it may be safely presumed that the lethal concentration in man does not exceed that for the dog.

Surgical anesthesia is rapidly and smoothly induced and it is not necessary to push the anesthetic to obtain the desired objective. The rapidity of the recovery from the anesthetic implies that it is rapidly removed from the body and provides a safety factor of no mean importance in so potent an agent.

TYPES OF CASES

In order that the anesthetic might receive a thorough study, it has been used in a wide variety of surgical lesions (table 1).

In the dental cases it has proved a valuable anesthetic and has supplanted the use of nitrous oxide and oxygen in the dental clinic in the Hospital of the University of Pennsylvania. The rapid induction and recovery, with efficient relaxation and minimum of after-effects, has made it the anesthetic of choice in this clinic.

The very low incidence of anoxemia, even for a short period, when divinyl ether has been used, in comparison with that observed during nitrous oxide and oxygen anesthesia for dental extractions, has been striking. The recovery from the anesthetic has been just as rapid, if not more so, than with nitrous oxide and oxygen anesthesia.

TABLE 1.—*General Classification of the Patients*

Dental	200
Ophthalmologic	36
Otolaryngologic	1,113
Orthopedic	178
General and neurosurgical	1,148
Total	2,675

We have been particularly impressed with the ease with which anesthesia can be maintained when a small piece of gauze is placed over the nostrils. When it is necessary to prolong the period of anesthesia, this is of definite advantage. The rapid recovery and infrequency of postanesthetic vomiting are of real importance in any clinic which has no provision for the temporary bed care of patients.

While it is true that the ophthalmologist, as a rule, prefers local anesthesia, there are times and conditions when general anesthesia is necessary. In the latter group divinyl ether has proved itself to be an ideal anesthetic. It has been very useful in fundus examinations in children and in a variety of ophthalmic operations in which local anesthesia needed reinforcement, or in children in whom cooperation could not be obtained for operations under local anesthetics. The ease with which the anesthetic may be administered through a small piece of fluffed gauze obviates the necessity of a mask, as is often required when nitrous oxide and oxygen is used.

The rapid, smooth induction is not attended by the struggling which so frequently is encountered during the induction of diethyl ether anesthesia in children. In our earlier series one instance of overconcentration of the anesthetic occurred, with rapid recovery after cessation of the anesthetic. In the present series no such complication was encountered.

In the field of otolaryngology divinyl ether has been widely used by us. It was used as the sole anesthetic in a series of tonsillectomies. In these it was the opinion of the operator that oozing from the tonsillar bed was greater than when diethyl ether was used. The oozing, while not alarming in any instance, was such as to be annoying during the removal of the second tonsil. It is for this reason that it is not now used as a routine for tonsillectomy. It is, however, now being used as a routine for the induction of general anesthesia for this operation in this hospital.

It is the opinion of both anesthetists and clinicians that the induction is more rapid and smoother than when nitrous oxide and oxygen is used as the preliminary anesthetic. Induction is much more rapid than when diethyl ether is used, and efficient relaxation of the masseter muscles is obtained at a much earlier period. The excitement period, so frequent in children when diethyl ether is used throughout, has been practically eliminated.

Divinyl ether has been used satisfactorily for mastoid operations, myringotomy, suppurative cervical adenitis and harelip operations. For myringotomy, in which only a very short period of anesthesia is required, it has practically supplanted all other anesthetic agents. A small amount of the anesthetic can be carried to the patient's bedside and the operation completed before the initial stages of diethyl ether anesthesia could have been induced. Furthermore, no apparatus such as is necessary when nitrous oxide and oxygen are used is required.

It has been used for a variety of orthopedic procedures including tenotomy, exposure and manipulations of joints, and the reduction of fractures. The rapidity with which relaxation can be obtained makes it exceedingly useful in the manipulation of bones and joints, especially when repeated anesthetizations may be required. Patients have not objected to repeated anesthetizations, the postanesthetic sensations on the whole being very pleasant. In painful dressings in children, short periods of anesthesia may change the morale of the entire ward. When restriction of motion of a joint results from prolonged immobilization, the use of the anesthetic during early manipulation results in a very grateful patient.

The general surgical procedures in which the anesthetic has been used are too varied to enumerate. They include thyroidectomy, rib resection, a large number of abdominal procedures, herniorrhaphy, hemorrhoidectomy, the reduction of fractures, and operations on the general soft parts of the body.

In many of these conditions it has no superiority over other anesthetics now available. For short operations in which rapid induction and recovery are desired, it is exceedingly useful. In those operations in which greater relaxation is required than that afforded by the anesthetic being used, divinyl ether is most helpful. For the fluoroscopic reduction of fractures, at all ages, it has become the anesthetic of choice. The rapidity with which relaxation is obtained is of real value in these cases. This is especially true when it is remembered that many of these patients have had no special preparation for anesthesia and frequently have ingested food a short time before anesthetization.

3. Waters, R. M., and Schmidt, E. R.: Cyclopropane Anesthesia, J. A. M. A. **103**: 975 (Sept. 29) 1934.

In the surgical outpatient department it has proved so efficient that nitrous oxide and oxygen are no longer used when a general anesthetic is required. In the incision and drainage of abscesses, the repair of lacerations of the soft parts, and for the reduction of ambulatory fractures, it has proved exceedingly efficient. It is the opinion of the staff of the surgical outpatient department that the rest required following anesthesia is approximately one-fifth as long as when nitrous oxide and oxygen are used.

AGES OF THE PATIENTS

The youngest child in this series was 15 months old and the oldest patient 75 years old. A child of 19 months was anesthetized for one hour and twenty minutes. During the entire period maintenance was smooth and at the completion of the operation recovery occurred in less than four minutes.

In hypertensive aged individuals and in patients with cardiac disease it has proved useful, for there is no tendency for the anesthetization to be attended with further elevation of the blood pressure, as so frequently occurs in nitrous oxide and oxygen anesthesia. Every age group over 1 year has been anesthetized. There is no age contraindication to its use.

LENGTH OF ANESTHESIA

In table 2 are given the data on the duration of anesthesia in the 2,675 anesthetizations.

It will be seen that nearly 85 per cent of the patients anesthetized received the anesthetic for short periods—up to thirty minutes. However, 15 per cent of the patients were anesthetized for from thirty to sixty minutes. One patient was anesthetized for two hours, one for two and one-half hours, and one for four and one-half hours. In the longer anesthetizations oxygen was nearly always used with the divinyl ether.

We have exercised caution in the use of the anesthetic for long periods because of the possible danger of liver necrosis. When the anesthetic period exceeded thirty minutes we have in certain instances changed to another anesthetic agent. This has been done to provide maximum safety, although we have come to believe that, properly administered, the time limit need not be so rigidly adhered to. In the entire series we have observed no serious untoward results. The group up to thirty minutes consists of 2,257 patients and is large enough for us to state that, properly administered, the anesthetic is safe for this period.

We have frequently resorted to its use when operations under spinal anesthesia have extended beyond the time of spinal anesthetization. It has also been used during the closure of abdominal incisions when the relaxation afforded by nitrous oxide and oxygen was insufficient for secure closure of the wound. For this purpose it is ideal.

Forty-one patients have been anesthetized on more than one occasion during a single admission. Twenty-three patients were anesthetized twice, ten patients three times, four patients four times, and four patients five or more times during a single admission. In not a single instance did the repeated anesthetization result in any untoward complication.

ANESTHESIA

With extended experience we can well repeat what we said in our earlier paper. The stage of induction with divinyl ether is short, so short in fact that it is rare to observe analgesia without loss of consciousness, except for the briefest interval. We have become accustomed to the rhythmic oscillation of the eyeballs that is observed frequently in light third stage anesthesia with this agent.

Laryngeal irritation is practically never observed, but we have had three instances of tight masseter spasm which was disturbing until an airway was introduced. This has always been observed during the early stages of anesthesia. It is not peculiar to divinyl ether anesthesia, since we have observed this complication with a variety of anesthetic agents.

In our earlier series we reported a stage of excitement in 2 per cent of our patients. In the present series, undue excitement lasting more than a few moments was present in twelve patients, which is less than 0.5 per cent. We believe that the reduction in the incidence of excitement is due to increased experience with the anesthetic, which permits of more rapid induction. Administered as it should be by experienced anesthetists, the rapidity of induction prevents a prolonged stage of excitement except in a very few.

Excessive mucus was present in nineteen patients, even though in nearly every instance the patient had received atropine sulfate prior to the anesthetization. The incidence of this annoying complication is so low, however, that it is of little consequence.

There have been six instances of marked cyanosis which was relieved either by the use of oxygen or by reducing the amount of the anesthetic used. There have been no major respiratory complications in the series, although there have been several instances of postanesthetic bronchitis. We are again impressed with the absence of respiratory complications following divinyl ether anesthesia. In our first series we believed that the low incidence of postanesthetic respiratory complications was due to the selection of cases and to the unusual care incident to the first tests with a new anesthetic. These factors do not apply nearly so closely to the present series. It would seem that anesthesia with this substance is remarkably free from postanesthetic pulmonary sequelae.

TABLE 2.—*Length of Anesthesia*

Up to 30 minutes	2,257
From 30 to 45 minutes	316
From 45 to 60 minutes	92
From 60 to 90 minutes	7
More than 90 minutes	3

The relaxation that has been obtained has been good. There have been several instances in which the surgeon believed the relaxation unsatisfactory, but in each instance the subsequent administration of diethyl ether did not afford greater relaxation. Every anesthetist and surgeon of experience has seen patients in whom it was difficult to obtain relaxation regardless of the anesthetic that was used. The fact that divinyl ether has practically supplanted every other anesthetic in the fluoroscopic reduction of fractures in the Hospital of the University of Pennsylvania means that the surgeons of the hospital are satisfied with the relaxation that the anesthetic affords.

Recovery from the anesthetic even after prolonged anesthesia is rapid when compared with diethyl ether or chloroform. It is, as a rule, more rapid than after nitrous oxide and oxygen anesthesia for a comparable period. The recovery is usually smooth, and is only rarely accompanied by any excitement. The postanes-

thetic sensations are nearly always pleasant, so that patients have had little fear of subsequent anesthetizations.

Vomiting more than once during the period of recovery and immediately thereafter occurred in fifty-four patients. When all patients vomiting a single time, which included the simple eructation of mucus, are included, the total number was 173, which is slightly more than 6 per cent. Since the anesthetic was administered practically as a routine in the surgical outpatient department when a general anesthetic was required and on many other occasions when there had been no control of diet prior to anesthetization, the incidence of vomiting must be considered low.

The urine was not examined in many of these patients after operation, but in those in which this was done, which is in excess of 600, there was not a single instance in which the urinary changes suggested that the anesthetic was a renal irritant.

Three patients in this series of 2,675 anesthetizations died within one week following operation. In each instance an autopsy was obtained and the death was in no manner ascribable to the anesthetic. Although liver necrosis in the human being can occur with divinyl ether anesthesia, we have not encountered it in this series. We have avoided using it on patients with known extensive hepatic derangement. If our experience is a criterion, we feel safe in stating that postanesthetic liver necrosis will not prove of any consequence when the anesthetic is properly administered for periods of anesthesia not exceeding one hour.

COMMENT

From our experience in a large number of patients anesthetized with divinyl ether we feel that the statement made by Leake and Chen [4] in 1930 that substances possessing the pharmacologic and chemical characteristics of diethyl ether and ethylene would be interesting anesthetic agents has been further substantiated. The hope that divinyl ether would prove to be the ideal anesthetic agent has not materialized. By the ideal anesthetic we mean one that would supplant all known general anesthetic agents. Surely such a substance does not now exist. However, divinyl ether possesses many of the characteristics which the ideal anesthetic agent must offer.

Anesthesia can be rapidly induced, and recovery is equally rapid. The induction is more rapid than with diethyl ether or with nitrous oxide and oxygen. The incidence of excitement is considerably less than with either of these agents and the recovery is as a rule much more rapid. Minute for minute of maintenance of anesthesia, the recovery from divinyl ether requires only a fraction of the time necessary for diethyl ether.

The incidence of untoward complications in our series following the use of this substance is low. In this hospital where in the general, neurosurgical and urologic services a careful record has been kept for the past fourteen years of the major complications, the incidence of postoperative complications has been lower than with diethyl ether, nitrous oxide and oxygen or spinal anesthesia. It must be admitted, however, that it is difficult to compare data from one anesthetic with another without carefully considering the condition of the patient prior to anesthetization and the indications that led to the selection of one anesthetic over another.

We feel safe in recommending divinyl ether as a general anesthetic for the extraction of teeth, the reduction of fractures, the manipulation of joints and a large number of surgical procedures which do not require prolonged anesthesia but which may require any degree of relaxation. It has been found to be safe in a very wide range of ages and in patients with severe myocardial disease. Rapid induction, smooth maintenance and rapid recovery can be expected and obtained. Postanesthetic vomiting is infrequent, and postoperative pulmonary complications in our experience are rare.

Reports from other clinics on the use of divinyl ether for anesthesia are now available (Bourne,[5] Shipway,[6] Bätzner,[7] Killian,[8] Dörffel,[9] Marvin,[10] Oehlecker [11]). Bourne has had a fairly extensive experience with divinyl ether anesthesia in obstetrics, a field in which we have had no experience. He concludes that "divinyl oxide is a very suitable anesthetic for employment in obstetrics. It permits of rapid application, equally rapid recovery, and a satisfactory maintenance of any desired degree of narcosis with minimal danger to mother and child."

Dörffel's [9] experience in the Surgical Polyclinic of Leipzig is similar to that of the surgical outpatient department of our hospital. He too found the anesthetic exceedingly useful because of the rapid induction and recovery and the infrequency of postanesthetic vomiting.

Bätzner [7] concluded from his experience that the anesthetic was as safe as diethyl ether, provided as efficient relaxation as chloroform, and was as rapid in its induction as the sodium salt of *n*-methyl-cyclohexenyl-methyl barbituric acid and as rapid in recovery as nitrous oxide and oxygen. Oehlecker [11] found it to be advantageous in small children.

In the several instances in which liver necrosis has occurred [12] after anesthetization, it has in each instance been found to be associated with prolonged use, excessive dosage or coincidental anoxemia. Contrary to Leake's opinion, we believe that liver necrosis may occur following divinyl ether anesthesia over a long period when every precaution to prevent anoxemia has been taken. We have been able to produce in the dog a degenerative lesion in the liver following diethyl ether anesthesia when the available oxygen was reduced in concentration but 5 per cent below that found in air. Chloroform is still being widely used even though its tendency to produce liver necrosis greatly exceeds that of divinyl ether. While chloroform will produce liver necrosis in the dog following one hour of anesthesia, it requires three hours of divinyl ether to produce liver necrosis in the dog, and even then the extent of the necrosis is not so great. While it is more toxic to the liver than diethyl ether, it is not as toxic as chloroform.

This fact should not prevent the use of an anesthetic which possesses many of the qualities that are desired in an anesthetic agent. It does, however, lead us to state that it should be used as a rule for operative

4. Leake, C. D., and Chen, M. Y.: Proc. Soc. Exper. Biol. & Med. **28**: 151 (Nov.) 1930.

5. Bourne, W.: Lancet **1**: 566 (March 17) 1934; cited by Goldschmidt, Ravdin, Lucke, Muller, Johnston and Ruigh [1] and Waters and Schmidt.[3]
6. Shipway, F. E.: Lancet **1**: 82 (Jan. 12) 1935.
7. Bätzner, W.: München. med. Wchnschr. **82**: 933 (June 7) 1935.
8. Killian, H.: Chirurg **7**: 433 (July 1) 1935.
9. Dörffel, E. W.: Deutsche med. Wchnschr. **61**: 955-957 (June 14) 1935.
10. Marvin, F. W.: Anesth. & Analg. **14**: 257 (Nov.-Dec.) 1935.
11. Oehlecker, F.: München. med. Wchnschr. **82**: 933 (June 7) 1935.
12. Goldschmidt, Ravdin, Lucke, Muller, Johnston and Ruigh.[1] Goldschmidt, Ravdin and Lucke.[2]

procedures of short duration in which rapid induction and recovery and a minimum of postanesthetic effects are desired.

SUMMARY

1. Divinyl ether has been used in 2,675 anesthetizations in a number of clinical departments, for a wide variety of lesions requiring anesthesia, principally of the shorter type.

2. Anesthesia is rapidly induced and easily maintained, and recovery is rapid. Muscular relaxation is excellent.

3. The postanesthetic complications in our cases have been low.

4. No instance of liver necrosis has been observed in our patients, but this was guarded against because this agent is more toxic than diethyl ether although less toxic than chloroform.

5. For short anesthetizations the anesthetic can be administered by the drop method, but for periods of anesthesia exceeding forty-five minutes the simultaneous administration of oxygen is advisable. Only a few of our patients were anesthetized for longer than forty-five minutes.

6. For a wide variety of operative procedures of short duration we believe that divinyl ether is a most useful anesthetic substance.

THE USE OF UREA IN THE TREATMENT OF INFECTED WOUNDS

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Urea in strong solution has a peculiar property of being able to "dissolve" proteins and protein substances. First noted by Spiro,[1] this lytic property was not thoroughly examined until discovered independently by Ramsden.[2] This "dissolving" of proteins occurs in neutral solutions or solutions of varying degrees of alkalinity or acidity, and since urea is a relatively inactive substance it occurred to one of us that it might be useful in wound therapy for the removal of mucus and other exudates, encrustations and necrotic tissue. Since commencing its use we have found that other investigators have already utilized it for the same purpose but for a different reason. Symmers and Kirk[3] more than twenty years ago, as a result of certain bactericidal properties they observed in urea solutions, used this chemical for the dressing of wounds, with excellent results. Millar[4] in a short note several years ago suggested the use of urea to suppress the foul odors of sloughing cancer. Foulger and Foshay,[5] impressed with the bactericidal action of urea, have also used it for treating infected wounds of various sorts with good results. Despite these favorable reports, urea therapy in the treatment of wounds has not attained any wide usage.

Our successful experience with urea therapy of infected wounds prompts the present report of the use of this therapeutic agent. We have used both the solid crystals and saturated solutions. Formerly synthetic urea of German origin was utilized. More recently synthetic urea has become available in this country (Du Pont) for the first time and can be purchased in 100 pound sacks at from 5 to 10 cents per pound, depending on the quantity purchased. It requires no further preparation for medicinal use.

So far a total of 139 cases have been treated with urea. These may be classified in the broad groups shown in the accompanying table. In no case did the application of urea in solution or as the crystals have any deleterious effects. Although in a few cases the application of urea did not appear to influence the course of the condition, the clinical impression was gained that not only was urea therapy efficient but it was far more successful than the common therapeutic agents used for infected wounds. There are so many factors in each case that it is very difficult to determine the relative efficacy of various medications. These case differences make controls impossible except in the very broadest sense. However, in many of the cases the good results were startling both in long standing lesions that had resisted ordinary treatment and in more recent pathologic conditions in which the result exceeded the usual expectations with diluted solution of sodium hypochlorite or other agents. The best results were obtained with the chronic ulcers, although most of the infected wounds became healed more quickly than can usually be expected. The less positive results for the "infectious group" may have been due to the greater cautiousness with which the urea was used in these cases. This agent cannot be used sparingly if successful results are to be expected. Several cases of osteomyelitis responded poorly to the treatment, but this may have been because the crystals were used and the exudate may have been insufficient to allow it to penetrate. It is obvious that the solution is the application method of choice in any condition in which a sinus or fistula is involved. Several typical results of the use of urea in individual cases are presented here:

Classification of Cases

I. Ulcers	
Varicose with skin grafting	3
Varicose without skin grafting	12
Trophic	3
Decubitus	16
II. Infected wounds	
Operative with drainage	22
Operative-secondary infection	8
Traumatic	26
III. Infections	
Carbuncles	9
Cellulitis	13
Burns (2d and 3d degree)	18
Osteomyelitis	11

CASE 1.—J. S., a youth, aged 17, injured the lower third of the left tibial crest in a football game and a trophic-like ulcer developed on the skin. Prolonged treatment with several commonly employed bactericidal agents failed to be effective, and the margin of the ulcer became further undermined with progressive enlargement. Ten days' application of urea crystals eliminated all infection, giving a healthy granulating base which was successfully grafted with Thiersch grafts. Thiourea (8 per cent) was used as a wet dressing with 90 per cent successful growth of grafts and complete epithelization. The patient was discharged home cured twenty-one days from the onset of treatment.

From the Scripps Metabolic Clinic, La Jolla, and the San Diego General Hospital.

1. Spiro, K.: Ueber die Beeinflussung der Eiweisscoagulation durch stickstoffhaltige Substanzen, Ztschr. f. Physiol. Chem. **30:** 182, 1900.
2. Ramsden, W.: Some New Properties of Urea, J. Physiol. **28:** xxiii, 1902.
3. Symmers, W. St. C., and Kirk, T. S.: Urea as a Bactericide, and Its Application in the Treatment of Wounds, Lancet **2:** 1237, 1915.
4. Millar, W. M.: Urea Crystals in Cancer, J. A. M. A. **100:** 1684 (May 27) 1933.
5. Foulger, J. H., and Foshay, Lee: The Antiseptic and Bactericidal Action of Urea, J. Lab. & Clin. Med. **20:** 1113 (Aug.) 1935.

CASE 2.—N. V., a man, aged 33, struck the anterior portion of the right leg midway between the knee and the ankle on a tent stake one month prior to admission and caused a slight abrasion. The usual methods of treatment for three weeks were not productive of healing and five days before admission to the hospital the unhealed area became sore and inflamed and this increased in severity. On the first examination the lesion was about the size of a half dollar (30 mm.) with undermined skin edges, a gray sloughing sore and an extensive surrounding area of cellulitis. The purulent discharge possessed a very foul odor. Initial treatment consisted of complete bed rest, elevation of the extremity and continuous hot saturated wet dressing of magnesium sulfate from the foot to the groin. This treatment was continued for four days with no improvement but rather a progressive extension of the ulceration of approximately one-fourth inch (6.4 mm.) daily. The wet dressings were discontinued and Dakin's technic was instituted for the following three days with no improvement and gradual extension of the tissue destruction, so that the ulcer area now measured about 5 by 6½ inches (13 by 16 cm.). At this point the area was packed once daily with urea crystals and, following the second application, definite clinical improvement was noted. Four days thereafter, or six days from the commencement of treatment, the necrotic tissue had completely disappeared, leaving a clean granulating base in which there were scattered islands of epithelium. Application of wet dressings of thio-urea for thirteen days produced complete and satisfactory healing without the necessity of skin grafting.

CASE 3.—M. C., aged 15 years, was struck in the left ankle with a rock and sustained a slight skin abrasion over the lateral malleolus and what was thought to be a sprain. X-ray examination at the time of the accident was negative for bone injury. The ankle gradually improved during the following thirty days and then progressively became worse, the symptoms extending over a period of six months. A roentgenogram taken at this time showed an extensive osteomyelitis involving the distal third of the fibula. Operation was performed and the involved bone removed; the wound was packed with petrolatum gauze and a plaster cast applied. On the fifth postoperative day a window was cut in the cast over the operative incision, the petrolatum packing was removed and the wound packed with urea crystal-picric acid mixture. Complete healing occurred in two months; the patient recovered entirely and was walking with no loss of function in three months. A check-up x-ray examination showed complete and satisfactory regeneration of the bone in the involved area. Many other more extensive and chronic cases of osteomyelitis have responded just as satisfactorily in the presence of adequate drainage. It was necessary in a number of these cases to use urea in saturated solution irrigated through catheters or Dakin's tubes placed in the multiple sinuses.

CASE 4.—T. S., aged 72, had a carbuncle which on admission, Nov. 1 1935, involved the entire intrascapular region. The temperature on admission was 103 F. The patient was irrational and toxic and appeared very ill. Urinalysis showed a trace of albumin and sugar, hyaline casts and an occasional white blood cell. A blood count revealed red blood cells 4,200,000 with 78 per cent hemoglobin, white blood cells 8,000 with polymorphonuclears 80 per cent, lymphocytes 18 per cent and monocytes 2 per cent (poor response). The carbuncle in the shoulder was opened with cruciate incisions with the actual cautery; the flaps were well undermined to the healthy tissue and the wound was packed with urea crystals. Mild glycosuria was controlled and the patient was given the usual supportive treatment. The following day the temperature was 99.6 F., and the patient was comfortable. The third day the temperature was normal and remained so for the remainder of convalescence. The wound was clean, with healthy granulation tissue in three weeks. Thio-urea was then applied with complete healing, without the necessity of skin grafting, on the thirty-sixth day (five weeks) after operation.

CASE 5.—J. P., aged 14, accidentally sustained a shotgun wound of the right upper thigh and buttocks. The original defect and tissue loss measured about 6 inches (15 cm.) in diameter. Débridement was done under general anesthesia; dirt, débris, shot and devitalized tissue were removed and tetanus antitoxin was given. The wound edges were closed as well as possible and the remaining central cavity was packed with urea crystals. A clean granulating wound was obtained in two weeks and, following further application of thio-urea, complete healing without the necessity of skin grafting obtained in another two weeks. The patient was ambulatory with no loss of function. (This was a remarkable result considering the defect.)

There appears to be no condition that the application of urea might possibly aid in which it is contraindicated. Urea is practically nontoxic and harmless in any reasonable quantity. For this reason and because of its cheapness it may be used liberally. Some antiseptic agents, particularly the various chlorine solutions, are unstable. Urea in the dry state is permanently stable and in strong solution remains unaltered for any length of time that one may wish. Even in contact with an open wound, urea retains its activity and is undecomposed. With urea therapy the danger of burning the surrounding skin is avoided. Urea appears to be without effect on living tissue, although in strong solution or as a crystal pack it may be rather painful on the wound or on mucosal surfaces. The best evidence that it is innocuous rests in the fact that even in gross quantities it does not cause necrosis of Thiersch grafts, an observation that was also noted by Symmers and Kirk.[3] The most obvious virtue of urea is the removal of the foul odor of suppurating wounds, and this without replacing one odor by another, as in the case of many deodorants.

The use of urea that we have discussed here should not be confused with the recent report of Robinson[6] reviewing the results of a number of practitioners in using a 2 per cent urea solution in the treatment of chronic and purulent wounds. This concentration of urea is too low to have any appreciable "solvent" action and we have been unable to obtain any evidence that urea directly stimulates healing, as this author seems to suggest. This investigator is of the opinion that urea, like allantoin, may be a metabolic product of living maggots which contributes to the healing action of maggot therapy.[7]

Possibly a better view, particularly in the light of critical surgical experience, is that therapy with maggots owes its success solely to the "scavenger action" of Baer that is produced by their ability to dissolve and digest dead tissue and débris.[8] In this connection the results with 2 per cent urea solutions are more explicable. All dead tissue tends to undergo autolysis, and Ramsden[2] showed long ago that 2 per cent urea has a marked effect in promoting the digestion of fibrin by proteolytic enzymes. In the concentrations of urea that we have used, on the other hand, we know that enzyme activity is definitely inhibited. For practical purposes we are doing chemically with strong urea solutions what normal tissue enzymes may do to some extent or what maggots may do in localized areas. The effect on healing in all cases is probably entirely passive; i. e., the procedures have no direct influence on cell growth or epithelization but only aid this to proceed normally by removing dead tissue, dried secretions and other hindrances. In addition, as we have pointed out, strong urea solutions have some bactericidal effects and an even more definite bacteriostatic influence, which is most desirable in infected wound therapy.

6. Robinson, W.: Use of Urea to Stimulate Healing in Chronic Purulent Wounds, Am. J. Surg. **33**: 192 (Aug.) 1936.
7. Baer, W. S.: The Treatment of Chronic Osteomyelitis with the Maggot, J. Bone & Joint Surg. **13**: 438 (July) 1931.
8. Messer, F. C., and McClellan, R. H.: J. Lab. & Clin. Med. **20**: 1219 (Sept.) 1935.

Two [9] of the three previous users of urea for wound therapy were prompted to use it because of its bactericidal effect. Ramsden [2] originally noted that in a saturated urea solution no putrefaction ever takes place. Péju and Rajat [10] and later Wilson [11] noted the influence of urea on bacterial growth. Foulger and Foshay [5] recently added to these data. In experiments to be presented elsewhere we have found that urea solutions of less than 15 per cent are not uniformly bacteriostatic and that those of less than 30 per cent not usually bactericidal. In the case of the common pyogenic organisms, the staphylococcus is the most resistant to urea action. Our experience has led us to conclude that urea in any concentration is not a really good germicide and that, although most certainly a contributing factor, bactericidal activity is not the chief influence in the usefulness of this substance for wound therapy.

With the end in view of giving urea solutions a more marked destructive action on bacteria, the addition of various substances to these solutions is now being examined. Calcium picrate [12] has been suggested for the treatment of osteomyelitis. "Urea picrate" is a loose compound and is now being tried out in combination with urea solutions. Phenol has been used to irrigate filthy chronically infected bladders. This acid forms an unstable compound with urea, and we are now investigating "urea phenolate" in strong urea solutions for this purpose. The phenol tends to reduce in some degree the pain incident to the presence of the strongly hypertonic urea solution on the mucosa. Many other combinations could be suggested and should be tried out.

Robinson,[6] as we have noted, is apparently of the opinion that urea directly stimulates healing. It is our opinion that this is not the case either in the mechanism of maggot therapy or with strong urea solutions. It seems more reasonable that in both cases conditions deterrent to healing are simply removed. However, there are certain compounds, notably those with the sulfhydryl group such as cysteine, thioglycerol and thiophenol, which appear definitely to have the ability to increase the rate of cell division and particularly epithelization. There seems to be no reason why these cannot be used in conjunction with urea solutions. In particular we have given thio-urea some trial and this gives promise of increasing the rate of wound healing quite apart from the more indirect effects of strong urea applications.

SUMMARY

The application of gross quantities of urea crystals or of strong to saturated aqueous urea solutions to infected wounds of various types definitely hastens healing and is frequently efficacious when other therapeutic agents are ineffective. Urea application is cheap, does not irritate the surrounding normal tissue and practically obliterates all odor arising from an infected wound. The mechanism of urea therapy is probably in part by virtue of the bactericidal effect of strong urea solutions but chiefly through the solvent action on proteins, which leads to a removal of the débris, encrustations and dead tissue, which mechanically and by harboring bacteria are usually the chief deterrents to normal healing.

9. Symmers and Kirk.[3] Foulger and Foshay.[5]
10. Péju, G., and Rajat, H.: Note sur le polymorphisme des bacteries dans l'urée, Compt. rend. Soc. de biol. **61**: 477, 1906.
11. Wilson, W. J.: Pleomorphism, as Exhibited by Bacteria Grown on Media Containing Urea, J. Path. & Bact. **11**: 394, 1906.
12. Stewart, M. A.: A New Treatment of Osteomyelitis, Surg., Gynec. & Obst. **58**: 155 (Feb.) 1934.

Clinical Notes, Suggestions and New Instruments

ALLERGY TO DYES

CONTACT DERMATITIS FROM EASTER EGG DYE—ASTHMA AND URTICARIA FROM METAPHEN

LEO H. CRIEP, M.D., PITTSBURGH

The type of manifestations that may be found in individuals allergic to dyes depends largely on the sensitive tissue. If the allergy is limited to the epidermis the lesion is contact dermatitis, while if the dermis is involved urticaria results. If the allergy is in the mucous membrane of the bronchi and bronchioles, bronchial asthma develops.

The following is an account of these various allergic manifestations occurring in two dye-sensitive patients:

REPORT OF CASES

CASE 1.—*Contact dermatitis due to Easter egg dye.* A child, aged 4 years, presented a history of flexor eczema (dermatitis involving the elbows, knees, face and neck) since early infancy. There was a strong family history of allergy. The blood showed an eosinophilia. The allergic survey and intradermal tests revealed sensitivity to several foods. Allergic treatment resulted in complete disappearance of eczema. Six months later the patient developed an extensive vesicular dermatitis involving the hands, forearms and face. The history elicited the information that the child had been painting Easter eggs with dyes that come put up in the form of matches. Investigation revealed that the colors used in these matches are oil blue G (alkyl aryl amino anthraquinone); oil red N-1700 (diazo dye belonging to the tolyl azo-zylyl azo-naphthol family); oil orange 7078 (monazo dye of the phenyl azo-naphthol group) and oil yellow. In addition, there is a small amount of ordinary commercial wax and sulfonated castor oil.

Intradermal tests with these dyes were negative, as was to be expected, since the allergy in this patient is limited to a sensitivity of the epidermis only. Patch tests, however, gave a positive reaction to red and orange but no reaction to the wax, castor oil or other dyes. Local symptomatic treatment and absolute avoidance of these dyes brought about complete relief.

CASE 2.—*Urticaria and bronchial asthma due to metaphen.* A man, aged 46, was first seen five years before, when he gave a history of bronchial asthma of ten years' duration. Occasionally there would be a mild attack of urticaria. There was no family history of allergy. Epinephrine would give him symptomatic relief. A blood smear showed an eosinophilia. Allergic survey and intradermal tests revealed the presence of sensitivity to several inhalants (feathers, orris root and the like) and foods. Allergic treatment rendered him completely symptom free for about two years, after which period he returned to the clinic and gave the following history:

While working in the mill he bruised his finger, the skin being only slightly abraded. He presented himself at the emergency hospital, where it was dressed after the application of metaphen. Within a half hour after this application a very severe attack of asthma developed, which lasted practically the entire night in spite of the administration of repeated injections of epinephrine. A week later, when the finger was dressed with untinted metaphen, no reaction occurred. This was repeated two days later with the same results. At this time scratch tests and intradermal tests with both the tinted and the untinted metaphen were negative, but following the tests with the tinted metaphen, and ranging from a half hour to three hours after the tests were performed, a very severe attack of asthma developed which lasted practically the entire night. Patch tests performed with both the tinted and the untinted metaphen were negative. After the patch test was performed with tinted metaphen, an attack of asthma developed. No such attack resulted from the patch test performed with the untinted product. Information received from the Abbott Company states that the dye employed in metaphen is orange I. The dye is also called tropeolin 000 No. 1 and alphanaphthol orange. Chemically it is sodium azo alphanaphthol sulfanilate ($C_{16}H_{11}N_{2}O_{4}SN_{2}$). Scratch tests and intradermal tests were then performed with

From the University of Pittsburgh School of Medicine, Department of Medicine and Allergy Clinic.

the dye alone (dilutions of 1:1,000 and 1:100) and a negative skin reaction occurred. Several weeks later, after all symptoms disappeared, an area on the arm the size of a silver dollar was painted with the orange dye. Two hours after the arm was painted a severe attack of asthma developed accompanied by generalized hives. These lasted over a period of about ten hours, necessitating the frequent administration of epinephrine. The procedure was repeated with exactly the same results several days later. It is interesting that when his left arm was painted with the orange dye, large hives and a massive swelling accompanied by itching, which lasted for a period of forty-eight hours, developed on the right arm at the point where the scratch test was done several days previously with the tinted metaphen. Complete avoidance of exposure to the tinted metaphen resulted in complete relief.

The allergy presented by this patient is one that involves a sensitivity of the dermis (urticaria) and the mucous membrane of the bronchi and bronchioles (bronchial asthma). It illustrates the nonantigenic nature of dyes as shown by the absence of demonstrable antibodies (reagins), for this patient gave a negative scratch and an intradermal skin test as well as a negative passive transfer to the dyes to which he is no doubt allergic.

1004 May Building.

LAUGHLEN'S TEST FOR THE SERODIAGNOSIS OF SYPHILIS

F. H. ROBINSON, M.D., AND GEORGE M. STROUD, B.S., DURHAM, N. C.

The serologic diagnosis of syphilis is at present complicated, time consuming and expensive. A rapid, cheap and reliable method of diagnosis is highly desirable. Laughlen[1] has recently described such a method and it is our purpose in this brief communication to report on its use in 1,000 serums taken in a routine manner from hospital patients. In Laughlen's test a drop of reagent is added to a drop of serum or spinal fluid on a glass slide, which is then tilted repeatedly and observed at frequent intervals in an indirect light. The reagent is prepared by adding tincture of benzoin compound, cholesterol, scarlet red and physiologic solution of sodium chloride to an alcoholic extract of beef heart. The reader is referred to the original communication for the exact details of preparation. A positive reaction is recognized by the macroscopic appearance of coarse red particles which rapidly increase in size, whereas when the reaction is negative the fluid remains homogeneous.

Laughlen compared the results obtained by his test with those of the Wassermann and Kahn tests on four hundred serums and found his results to be in agreement with the Wassermann test in 98 per cent of serums and with the Kahn test in 99 per cent. He made the same comparison with the serums of 118 patients receiving antisyphilitic treatment and found that his test agreed with the Wassermann test in 93.5 per cent and with the Kahn test in 97 per cent of the cases.

When the three tests were done simultaneously on 1,000 serums in our laboratories it was found that the Laughlen test was in accord with the Wassermann test in 93 per cent of serums and with the Kahn test in 97 per cent, thus confirming with surprising exactitude Laughlen's results. In this series of 1,000 cases the reagent employed was prepared by us according to Laughlen's directions. In an additional series of fifty serums Laughlen's reagent was supplied by the Lederle Laboratories, and the results obtained were in accord with simultaneous Wassermann and Kahn tests in every instance. We have found the Laughlen test equally reliable when cerebrospinal fluid is tested.

This test offers a simple and rapid quantitative estimation of serologic positivity because the degree of positivity is read in terms of seconds required to react with the reagent. Therefore this test is of great value in following the response of serums of patients under treatment.

Some experience and skill are required in the balancing of Laughlen's reagent, for it must be so adjusted that a positive reaction is given with serums showing a one plus Wassermann reaction and no reaction to serums which are negative to the Wassermann test. This adjustment is readily made. Because of its simplicity and speed the test is useful in testing donors for emergency blood transfusions, as a rapid preliminary test for suspected syphilitic meningitis and for emergency work in the outpatient clinic.

CONCLUSIONS

1. The Laughlen test is a simple, practical and reliable test for syphilis.
2. The degree of positiveness can be read in terms of seconds required to react with the reagent.

From the Departments of Medicine and Bacteriology, Duke University School of Medicine.

1. Laughlen, G. F.: A Rapid Test for Syphilis, Canad. M. A. J. 33: 179-183 (Aug.) 1935.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS. HOWARD A. CARTER, Secretary.

ANNUAL MEETING

The Council on Physical Therapy held its annual meeting January 8 and 9. The following members were in attendance: Drs. W. W. Coblentz, John S. Coulter, A. U. Desjardins, W. E. Garrey, Frank H. Krusen, Harry E. Mock, Frank R. Ober, Ralph Pemberton, H. B. Williams, Olin West, Morris Fishbein and Mr. Howard A. Carter.

Dr. Harry E. Mock was reelected chairman, and Dr. W. E. Garrey was elected vice chairman to take the place of Dr. F. J. Gaenslen, who resigned because of illness and the news of whose death came as this report was being prepared for publication.

Dr. Gordon Heyd, President of the American Medical Association, and Dr. Rock Sleyster, Chairman of the Board of Trustees (who were attending the meeting of the Board of Trustees at the same time) gave personal greetings. The members of the Council expressed their appreciation for the enlarged facilities recently made available to them at headquarters.

CHANGES IN MEMBERSHIP

There has been a change in the personnel of the Council in the past year. Drs. George M. MacKee and Robert B. Osgood have resigned. Dr. Osgood resigned because of other more pressing duties, and Dr. MacKee was obliged to curtail his activities. Dr. Frank R. Ober was appointed to fill the vacancy left by Dr. Osgood, Dr. George C. Andrews to fill the vacancy left by Dr. MacKee, and Dr. Frank Dickson to take the place of Dr. Gaenslen. The personnel remains at twelve.

RESEARCH GRANTS

Grants in aid of research are awarded to those persons who demonstrate that they have a problem of merit. Accomplishments of those receiving such grants were looked on with satisfaction. However, the Council felt that there may be more physicians and investigators working on physical therapy problems desiring aid, and it was believed that announcement should be made in scientific journals concerning the availability of these grants of limited sums.

ULTRAVIOLET GENERATORS

In view of the progress that has been made by the Council on Foods in the consideration of vitamin D milks and fortified vitamin D foods and the progress made by the Council on Pharmacy and Chemistry in the consideration of vitamin D concentrates, it was the opinion of the Council on Physical Therapy that the standards for the acceptance of ultraviolet generators should be revised.

EDUCATIONAL ACTIVITIES

The Council expressed its approval of the work of the Committee on Education of the Council and also of the activities of the Consultants on Education who have been aiding in the promotion of physical therapy among practicing physicians. In the opinion of the Council, the tremendous inertia caused by the indifference of the profession to the practice of physical therapy, which existed eleven years ago when the Council was established, has been largely overcome, and resistance at the present time is merely passive. The Council felt that it was important to get in contact with young physicians and undergraduate students in medicine. It was gratifying to learn that many of the younger physicians are specializing in the field

of physical therapy for the purpose of taking over departments of physical therapy in schools of medicine. The Council felt that postgraduate instruction in physical therapy might well be carried on under the auspices of the graduate schools of medicine. The following Consultants on Education were reelected: Dr. Bernard Fantus, Dr. A. J. Kotkis, Dr. Richard Kovács and Dr. Franklin P. Lowry. Dr. William H. Schmidt was appointed to take the place in Pennsylvania vacated by Dr. Krusen.

The Council believed that the time was about due for an investigation of spas, sanatoriums and similar health resorts but that this work should be carried out under the direction of the Council on Medical Education and Hospitals.

Suggestions for experiments in physics, bearing on subjects of interest to medical students, the Council decided might well be prepared and distributed to college teachers of physics.

CONSIDERATION OF SHOES

Progress has been made in the consideration of shoes. The preparation of just specifications and requirements to be met was found to be more difficult than was originally expected. This accounts for the delay in reports on shoes submitted to the Council.

LIMITATIONS OF SHORT WAVE DIATHERMY

Much of the work of the Council the past year has been confined to the consideration of so-called short wave diathermy machines. In view of the deliberations, the Council believed it was justifiable to state, based on the present available evidence, the following conclusions:

1. There is no specific biologic action of high frequency currents.
2. There is no specific bactericidal action.
3. The therapeutic effect is due to the heat produced.

Elaborating on these three conclusions, the Council felt that the general practitioner should understand that when he buys a short wave diathermy machine he is simply purchasing an apparatus capable of producing heat. In the light of available evidence, it has absolutely no other specific action. The Council felt that, if this point was understood by the physician in general practice, he might hesitate before purchasing an expensive apparatus, because simpler mechanical means for the production of heat are available and as efficacious in many cases. For the specialist in physical therapy having a sufficient number of cases, the expense of a short wave diathermy machine might not be so important.

The question arose in the minds of the Council whether there was too much emphasis being placed on machine therapy. It was pointed out that the Council went on record several years ago to the effect that physical therapy consists of 90 per cent intelligent handwork which may be accomplished by heat, massage and exercise, and 10 per cent machine therapy. The short wave diathermy machine, for example, is a useful therapeutic agent, but in the light of the present day evidence its therapeutic effect is that of heat and heat only. The Council reaffirmed its stand to continue the consideration of all short wave machines submitted by the methods that have been followed during the last two years. If only minor changes have been made in accepted units, the Council decided that these alterations may be dealt with independently.

RADIO INTERFERENCE

Interference with radio communication by short wave diathermy has been reported. The Council voted that, in the future, acceptable diathermy machines must be fitted with line filters or other devices to eliminate "feed back" of high frequency current in the power supply lines. The Council plans to enforce this rule in ninety days.

SEAL OF THE COUNCIL

A seal denoting acceptance of a product by the Council has been adopted. The Council also voted that decalcomanias be made available to those who desire to use the seal on apparatus and advertising. Electrotypes of the seal may be obtained from THE JOURNAL.

PUBLICATIONS OF THE COUNCIL

The Council was gratified by the response of the profession now that the original printing of 4,000 copies of the Handbook is entirely exhausted and that a second printing is necessary. The booklet Apparatus Accepted has been reprinted also. The Council voted that, when it is revised, it be made larger by the addition of general discussion, and that the general appearance be made to conform with that of New and Nonofficial Remedies.

D. C. A. PORTABLE DIATHERMY MACHINE NOT ACCEPTABLE

Manufacturer: Diathermy Company of America, 102 West Forty-Second Street, New York.

The D. C. A. Portable Diathermy Machine is a small unit which is advertised and sold directly to the public by lay salesmen, who are provided with pamphlets and testimonials of lay users. Instruction for its use is given largely by the salesmen.

A copy of the advertising matter, which has been referred to the Council, contains statements such as: "Treat yourself to Health . . . Scientifically—Here is a mild, safe way to get relief from torturing pains without doping yourself with drastic drugs. Diathermy is a scientific method that has been accepted by all leading physicians and hospitals . . ."; "When treating yourself with D. C. A. Diathermy you have no further need for pills, powders, or prescriptions"; "Diathermy not only relieves the pains you already have—it will stop many before they start"; "Diathermy (inner heat) goes deep into the binding congested area—and stays in. People suffering from the following ailments are invited to try diathermy at our expense:—Arthritis, Neuritis, Sciatica, Lumbago, Neuralgia, Pneumonia, Bronchitis, Gout, Asthma, Hay Fever, High blood pressure, Sinus disorders, Poor circulation and many other ailments"; "Only with Diathermy can you expect blessed relief—try it."

One part of the advertisement reads: "No obligation for free home demonstration by trained technician. We have at your disposal a staff of trained technicians who will demonstrate a D. C. A. Diathermy instrument to you in your own home. This visit is without cost or obligation to you. Upon your request by either phone or mail we will be glad to make an appointment to send one of our technicians. D. C. A. Diathermy instruments can be rented for short periods."

The machine appears to weigh about 25 pounds. It is a spark gap machine, equipped with intensity controls and electrodes for application.

In the opinion of the Council on Physical Therapy, the Diathermy Company of America is practicing methods that are detrimental to rational therapeutics. The use of promotional sales methods by those unqualified to practice medicine constitutes an appeal to the public with arguments which are unscientific and may harmfully enhance a feeling of false security on the part of the public.

In view of the foregoing, the Council voted not to include the D. C. A. Diathermy Machine in its list of accepted devices.

AN APPRECIATION

The Council on Physical Therapy wishes to acknowledge, with appreciation, the efforts of the following consultants who have so generously contributed their time to the Council by assisting in the investigation of apparatus and the consideration of other problems that have confronted the Council: Drs. Fred L. Adair, Francis Heed Adler, M. Herbert Barker, William Bierman, Walter Boothby, Joseph Brennemann, Curtis Burnam, Anthony Cippollaro, George M. Coates, L. F. Curtiss. L. W. Dean, Géza de Takáts, F. H. Ewerhardt, Bernard Fantus, Samuel Feinberg, E. P. Fowler, Jonas Friedenwald, Sanford Gifford, F. B. Gordon, Samuel Gordon, Henry Hartig, Austin Hayden, Allan Hemingway, John Severy Hibben, Isaac H. Jones, Kenneth Karl Jones, Frederick T. Kidner, Disraeli Kobak, A. J. Kotkis, Richard Kovács, Henry Laurens, Franklin P. Lowry, Douglas MacFarlan, John MacNie, S. A. Morton, Tell Nelson, Horace Newhart, Robert B. Osgood, Charles Peabody, George Pfahler, John Pribble, Edwin Ryerson, R. Plato Schwartz, B. R. Shurly, Alfred Steegmann, K. W. Stenstrom, Ivan B. Taylor, Clifford B. Walker, Ralph Waters, W. P. Wherry, Miss Gertrude Beard and Mr. S. L. Osborne.

Council on Pharmacy and Chemistry

PRELIMINARY REPORT OF THE COUNCIL

AS A RESULT OF ITS CONSIDERATION OF EVIPAL SOLUBLE, THE COUNCIL VOTED THAT THE DRUG BE DECLARED UNACCEPTABLE UNTIL MORE TRUSTWORTHY METHODS ARE AVAILABLE FOR DETERMINING THE SAFE AND EFFECTIVE DOSAGE UNDER A WIDE VARIETY OF CONDITIONS, UNTIL THE CONTRAINDICATIONS—BOTH RELATIVE AND ABSOLUTE—HAVE BEEN ADEQUATELY DETERMINED, AND UNTIL COMPREHENSIVE PHARMACOLOGIC STUDIES MAKE POSSIBLE THE FIXING OF RESPONSIBILITY OF THE ANESTHETIC IN MANY OF THE AVAILABLE CLINICAL REPORTS OF ACCIDENTS.

ALTHOUGH IT IS NOT THE USUAL CUSTOM OF THE COUNCIL TO SUBMIT TO MANUFACTURERS REPORTS ON PRODUCTS WHICH HAVE NOT BEEN PRESENTED, THE COUNCIL SENT THE WINTHROP CHEMICAL COMPANY, INC., THE REPORT OF ITS CONSIDERATION. THE FIRM REPLIED ON ITS OWN ACCOUNT AND SENT ALSO A REPLY OF DR. WEESE, SOME OF WHOSE WORK WAS DISCUSSED IN THE REPORT. AFTER DUE CONSIDERATION THE COUNCIL HELD THAT NEITHER OF THESE REPLIES OFFERED ANY WARRANT FOR CHANGING ITS DECISION THAT THE PRODUCT IS AT PRESENT UNACCEPTABLE. THE COUNCIL ADOPTED THE FOLLOWING STATEMENT (WHICH IS SUBSTANTIALLY THAT SENT TO THE FIRM) FOR PUBLICATION AS A PRELIMINARY REPORT.

PAUL NICHOLAS LEECH, Secretary.

EVIPAL SOLUBLE

The Winthrop Chemical Company, Inc., has been very active in promoting Evipal Soluble in the United States. It has not, however, presented the product to the Council on Pharmacy and Chemistry. The Council was therefore obliged to take up the consideration on its own initiative.

Evipan (Cyclural), C-C-Cyclohexenyl-N-methyl-barbituric acid, was prepared in the Elberfeld Chemical Laboratory, and in 1932 it was introduced under the name Endorm as a hypnotic having a brief action. Evipan is slightly soluble in water, but the readily soluble salt, Evipan Sodium, was introduced as a general anesthetic to be injected intravenously. The product is still known abroad by the term Evipan, or Evipan Soluble (for the sodium salt). In the United States, Evipal Soluble (Cyclural Soluble) is the market name. Both names (Evipan Sodium and Evipal Soluble) are used in this report, because both are used in the literature; in general, the name Evipal Soluble is used for the product sold in this country and Evipan Sodium for that sold abroad. The ending "al" makes the product consistent with the terminology accepted for most of the hypnotics of the barbituric acid series.

I. PHARMACOLOGY

It would seem almost trite to state that there can be no rational therapeutic use of an agent without adequate knowledge of its pharmacologic actions, but the following discussion of available literature shows that Evipan Sodium was introduced into general use before adequate pharmacologic investigations had been made.

Weese,[1] the director of the pharmacologic laboratories of the I. G. Farbenindustrie A. G. Elberfeld, determined the hypnotic, narcotic and fatal doses of Evipan Sodium for the cat and mouse by oral administration, for the mouse by subcutaneous injection, and for the cat and dog by intravenous injection. He reported that the intravenous narcotic dose for the cat is 25 mg. per kilogram and that the fatal dose is from 100 to 110 mg. per kilogram; that the therapeutic ratio for the cat is 4, while that for the dog is 3.3. He stated that it lacks local irritant actions and side actions as well as after-effects; that the slight affinity for the vital organs explains the slight toxicity and broad therapeutic margin.

Weese[2] explained later that the action of Evipan Sodium is brief after its intravenous injection because it is destroyed rapidly in the liver, little being excreted in the urine. The narcotic action is prolonged when the function of the liver is impaired. Weese stated that a fatal dose always causes death in the cat by paralysis of respiration. This has been interpreted to apply to man, in which case it is dangerously misleading.

Weese[2] described six stages of narcosis. That stage which is always induced by the intravenous injection of 25 mg. per kilogram in the cat is termed "rausch." In this stage there is confusion without abolition of the reflexes, but full anesthesia with loss of the reflexes was not always induced with doses of less than 30 mg. per kilogram. This shows, of course, a lower therapeutic ratio than 4, but the latter fact has been ignored by many who have cited Weese's therapeutic ratio, even when they used full anesthetic doses, with loss of reflexes.

Parsons[3] "found that in the cat 0.1 c.cm. of a 10 per cent solution caused a fall in B. P. of 25 mm. Hg, with slow recovery and apnoea for 20 seconds. After a total of 0.6 c.cm. of 10 per cent solution [60 milligrams] artificial respiration was needed and the B. P. fell until death." The rate of the injection is not stated, but these figures suggest a factor of safety, or therapeutic ratio of 2 for full anesthesia [Weese's sixth stage]; they are also in harmony with the results of experiments on guinea-pigs reported by Kennedy, but they are not in harmony with the statement of Weese.

Kennedy[4] reported a therapeutic index of 4 for mice. There was great variation in the fatal dose, and the therapeutic ratio based on the smallest fatal dose is about 3. Kennedy found guinea-pigs more susceptible than mice, but he does not state the therapeutic factor for these. A dose of 0.4 mg. per 10 Gm. of weight did not produce unconsciousness, and none survived a dose of 1 mg.; hence the indicated therapeutic ratio is evidently less than 2.5. There is no justification for assuming that the therapeutic ratio for man is less than that for the guinea-pig, but these figures have been ignored almost completely by those who used Evipan Sodium for narcosis.

Kennedy observed that sneezing preceded narcosis in mice and that opisthotonos occurred in 25 per cent of the animals before complete muscular relaxation was induced. Many exhibited a fine tremor or violent shaking of the whole body, which was lessened by warming. Death resulted from failure of respiration. Two mice were anesthetized seventeen and eighteen times, respectively, with intervals of one or two days; some liver damage resulted. Kennedy found that toxic properties predominated when frogs were used.

Kennedy and Narayana[5] found that the frog's heart brought to a standstill by perfusion with solution of Evipan Sodium recovered when perfused with unpoisoned solution. This is in harmony with the results observed by Storm,[6] who perfused the heart of the monkey. He observed that the slow intravenous injection of 25 mg. per kilogram induced narcosis without excitement in the monkey (Hylobates and Macaca irus), with abolition of spinal reflexes. Any slight fall of blood pressure resulted from action on the vasomotor centers. Fatal doses caused death by paralysis of respiration before the heart stopped.

Wright[7] stated that a dose of ¼ grain of Evipan Sodium per pound [35.6 mg. per kilogram] caused anesthesia lasting from ten to fifteen minutes in the dog, followed by a narcotic period [attended with incoordination] lasting from three to four hours. He states: "In every case in which it has been used, this period of recovery has been associated with frenzied struggling and excitement, and for this reason we have ceased to use it." Wright is a veterinarian and refers to its use for animals.

Holck and Cannon[8] reported that delayed death in rats followed apparent recovery from depression induced by Nostal, but not that due to Evipan Sodium or any one of several other barbiturates.

Dallemagne[9] reported that Evipan Sodium caused serious anemia in dogs, even when the dose was repeated at intervals of several weeks. Clinical reports of the use of repeated doses of the drug do not contain any mention of anemia, even when the dose was repeated twenty-nine times.[10]

Schranz[11] observed that patients with peritonitis and septic conditions required smaller doses of Evipan Sodium for anesthesia than did the average patient. He found that with the progress of infection and increasing weakness in experimentally infected animals the narcotic dose fell to one-fifth that required

1. Weese, H.: Deutsche med. Wchnschr. **58:** 1205, 1932.
2. Weese, H.: Deutsche med. Wchnschr. **59:** 47, 1933.
3. Parsons, cited in report of the Anesthetics Committee Medical Research Council, Lancet **2:** 43 (July 1) 1933.
4. Kennedy, W. P.: J. Pharmacol. & Exper. Therap. **50:** 347, 1934.
5. Kennedy, W. P., and Narayana, B.: Quart. J. Exper. Physiol. **24:** 69, 1934.
6. Storm, C. J.: Klin. Wchnschr. **14:** 504, 1935.
7. Wright, J. G.: Proc. Roy. Soc. Med. **29:** 701 (sectional page 45), 1936.
8. Holck, H. G. O., and Cannon, P. R.: J. Pharmacol. & Exper. Therap. **57:** 128, 1936.
9. Dallemagne, M. J.: Anesth. & Analg. March-April, 1936, p. 82.
10. Bartlakowski, J.: Zentralbl. f. Chir. **61:** 2721, 1934.
11. Schranz: Arch. f. klin. Chir. **177:** 53, 1933.

for healthy animals. Velu[12] reported that the injection of a dose of 33 mg. of Evipan Sodium per kilogram caused marked cyanosis in a horse which was severely ill with trypanosomiasis.

Von Brandis[13] found that with increasing depth of narcosis induced by Evipan Sodium or other anesthetic the analeptic effects of epinephrine, caffeine, strychnine, cardiazol, (mitrazol), coramine and strophanthin diminish and finally cease and that in deep narcosis these analeptics injure the circulation and respiration in the rabbit. He states that these results cannot be transferred directly to man. If it is valid to transfer the therapeutic ratio to man, it is difficult to explain why the results observed by von Brandis should not be equally applicable to man.

Fretwurst[14] administered a total of 15 Gm. of Evipan orally to a dog in a period of ten days and recovered 5.6 per cent of the total barbituric acid in the urine, but he did not determine the form in which it was present. He stated that he and Halberkann had found from 1.2 to 4.5 per cent of single intravenous doses in the urine in man.

II. THE THERAPEUTIC USE OF EVIPAN AS A HYPNOTIC

The therapeutic use of Evipan as a hypnotic is of minor importance in the present discussion; hence it will be discussed briefly. Scharpff[15] observed that it induces sleep promptly, and, since its action is brief, he concluded that it is useful for inducing sleep in those who lie awake without pain and for those who waken early in the morning. He observed no ill effects from its use, with reference to the heart or vascular system, and no effects on the day following its administration. Weese[1] reported that the hypnotic and narcotic doses in animals lie close together, but it is obvious that the hypnotic dose for man when used in this way is far from the full anesthetic dose. Unfortunately the term "hypnotic" is also used to indicate the condition of mental confusion bordering on anesthesia in man. The hypnotic dose in that sense also lies near the narcotic, in fact it is the narcotic, in man.

III. NARCOSIS

The terms basal, basis and induction narcosis and "rausch" are used by different individuals with slightly different meanings, and several have defined these terms. Harms[16] defines "rausch" as the stage between sleep and full narcosis, during which perception of pain is lost but during which the patient is able to answer questions intelligently. It is useful for slight operations, such as simple incisions, and for the removal of teeth. Evipan Soluble has been recommended by many for inducing various stages of anesthesia, and Kamniker and Rintelen[17] stated that it had been generally accepted for "rausch" by those at the German Surgical Congress in 1933.

Baetzner[18] reported that he had used Evipan Sodium in about 400 cases; that his investigation was incomplete, but that he had found it useful for "rausch," preliminary to ether or ethyl chloride, and alone for full anesthesia; that it is harmless and safe, with a complete absence of contraindications; that no special technic or experience regarding dosage is required—one merely follows the rules; that this requires no skill for its administration.

Holtermann[19] used the drug in about 700 obstetric and gynecologic cases and was warm in his praises, recommending it for all short gynecologic operations, but not before delivery in labor, because of want of knowledge of its action on the child. Later Holtermann[20] became more conservative after he had used it about 1,800 times, during which he had a fatality. He then maintained that it could not be used with entire safety for full anesthesia.

Kobel[21] stated that it is increasingly plain that Evipan Sodium is not suitable for long operations. Unfortunately, the conservative view which Kobel expressed so early in the history of the drug was not generally accepted at that time, and Kohlhage[22] maintained that it is useful in suitable cases for prolonged operations. He opposed its use in obstetrics because of interference with uterine contractions. The difficulty lies in determining which cases are suitable. There is even today a want of agreement, and Coryllos and Bass[23] recommended its use in major operations. Oettle[24] probably expresses the opinion of the greater number of conservative observers when he holds that the drug finds its proper field limited to induction and short narcosis.

IV. DOSAGE

Evipal Soluble is sold in ampules each of which contains 1 Gm. of the drug, with an ampule which contains 10 cc. of sterile water. The aqueous solution decomposes in a short time; hence the drug is dissolved in the sterile water just before it is used. It is stated in the advertising and by many authors that this forms a 10 per cent solution and that 1 cc. contains 0.1 Gm. of the drug. The solution prepared according to the printed directions measures slightly more than 10 cc., and 1 cc. contains less than 0.1 Gm. The error is usually negligible, but it should not occur with such a potent drug. The solution made in this way is so generally used that the dosage is almost always expressed in cubic centimeters of this solution, and reference is made to it in the present discussion. Many authors stated in 1933 that they used the doses recommended by the manufacturers. The referee has not seen the earliest advertising of Evipan Sodium, but it is often implied that 10 cc. is the dose recommended. A circular received by a physician in 1935 bears the following statement:

"Simple Dosage Determination

"Estimation of the required dosage is not difficult. It is based essentially on the rapidity and intensity of the effect of the first fraction of the dose on the individual patient. As with other anesthetics, the general condition is also taken into consideration. Furthermore, the maximum of 0.06 cc. of the 10 per cent solution of Evipal Soluble for every pound of body weight is usually not exceeded at a single injection. The adult dose, therefore, ranges from 5 to 10 cc."

The circular contains no instructions regarding the rate of injection, nor does it mention any contraindications specifically. The foregoing statement is in harmony with that of Baetzner, who maintained that one "merely follows the rules," and also with that of Baumecker,[25] who stated that initial doses vary from 4 to 5 cc. in about one minute, the remainder more rapidly, the "exact dosage not being given and not necessary." He referred to the dosage recommended by the manufacturers and stated that they recommended a maximum of 10 cc. of the 10 per cent solution. Samuel[26] stated that with doses of from 4 to 5 cc. and repetitions of from 2 to 3 cc. one may secure painless childbirth.

Numerous reports of serious accidents and some fatalities following the use of Evipan Sodium soon led to efforts to devise a safe and effective method of administration. This involves two closely related questions. The first is the total dosage; the second is that of the rate of injection.

Baetzner[27] stated that it is wrong to follow any schematic dosage; that the hypnotic [light narcotic] dose for some patients is only from 0.5 to 1.0 cc., and that in one case a total of 1.5 cc. sufficed for anesthesia for an operation for hernia in a man of 75; that the elderly and the decrepit seldom require more than 4 cc., and that the use of even that dose often requires extreme care. Simenauer[28] reported tolerance [light anesthesia] induced by 0.5 cc. in a man in whom there was closure of the bile duct. Lauber[29] reported that sleep followed the injection of only 1 cc. in a man weighing 85 Kg. in whom a total of 3 cc. sufficed for anesthesia during an amputation. Honkamp[30] reported that some elderly patients bore doses of 10 cc. well, while some did not. Baetzner[31] reviewed the subject and stated that much less is needed than was at first supposed; that the chief field is for induction and for short operations. The tone of this paper is in sharp contrast to that of his first.

It was maintained for a time that the drug must be injected fairly rapidly—the total within from two to three minutes—in order to secure a sufficiently high concentration in the blood

12. Velu, cited by Menegaux and Sechehaye.
13. von Brandis: Arch. f. klin. Chir. **177:** 17, 1933.
14. Fretwurst: Med. Klin. **29:** 893, 1933.
15. Scharpff, W.: Deutsche med. Wchnschr. **58:** 1205, 1932.
16. Harms, J.: Ztschr. f. Chir. **241:** 741, 1933.
17. Kamniker, K., and Rintelen, G.: Ztschr. f. Chir. **244:** 571, 1935.
18. Baetzner, W.: Deutsche med. Wchnschr. **59:** 48, 1933.
19. Holtermann, C.: Deutsche med. Wchnschr. **59:** 50, 1933.
20. Holtermann, C.: München. med. Wchnschr. **80:** 1547, 1933.
21. Kobel, E.: Deutsche med. Wchnschr. **59:** 996, 1933.
22. Kohlhage, T.: München. med. Wchnschr. **81:** 110, 1934.
23. Coryllos, P. N., and Bass, Sara: Current Researches in Anesth. & Analg. **15:** 66, 1936; Ann. Surg. **104:** 46 (July) 1936.
24. Oettle, E.: Zentralbl. f. Chir. **63:** 1104, 1936.
25. Baumecker, H.: Zentralbl. f. Chir. **60:** 482, 1933.
26. Samuel, M.: Deutsche med. Wchnschr. **59:** 286, 1933.
27. Baetzner, W.: Zentralbl. f. Chir. **61:** 597, 1934.
28. Simenauer, quoted by Stimpfl.
29. Lauber, J.: Zentralbl. f. Chir. **60:** 806, 1933.
30. Honkamp: Med. Klin. **29:** 1085, 1933.
31. Baetzner, W.: Zentralbl. f. Chir. **62:** 1600, 1935.

stream. Anschuetz [32] stated that excitation in the first stage was due to overdosage or to a too slow rate of injection. Laesecke [33] held that injection at a slower rate than 1 cc. in fifteen seconds tends to induce resistance and failure to induce anesthesia.

Smaller doses and a slower rate of injection soon came into use among conservative surgeons, and Gautier [34] stated that slow injection is the main consideration and that rapid injection leads to inevitable disaster. He injected pantopon (the hydrochlorides of the alkaloids of opium, principally morphine) and after an hour the solution of Evipan Sodium was injected at the rate of 1 cc. in two minutes. When prolonged anesthesia was desired, Gautier injected from 0.5 to 1.0 cc. every five to ten minutes. There is still some diversity of opinion concerning the optimum rate of injection, but many conservative surgeons inject the solution slowly until twilight sleep is induced, and after an interval of about three minutes, during which the depth of anesthesia increases, additional amounts are injected slowly until the required stage of anesthesia is induced. Prolonged anesthesia is maintained preferably with ether. Some maintain that with the injection of fractional doses of 1 cc. or less the control of anesthesia is equal to that with ether.

The widely different views of equally competent observers may be harmonized in part with the knowledge gained by experience. Rapid injection is not desirable, but it is far less dangerous in young, healthy, strong patients than in elderly, feeble and seriously ill patients, who are peculiarly susceptible to the toxic effects of the drug. Rapid injection is courting disaster with such patients. The question of dosage and the rate of injections are closely connected with those of indications and contraindications, and they cannot be considered wholly independently.

The functional activity of the liver in any patient influences the safety of a given dose of Evipal Soluble, but the anesthetic activity and the toxicity are increased by a great variety of conditions, which must be considered when determining the availability of the anesthetic and in calculating the dosage. Healthy children and strong, healthy, young adults require relatively large doses, and "failures" are more common among such patients than among the elderly. Severe sepsis, ileus, peritonitis, cachexia, emaciation, severe hemorrhage, and anything that tends to lower the resistance of the circulatory and respiratory systems are all indications for the greatest caution with regard to the total dose and to the rate of injection. It is not difficult, therefore, to understand why some patients have been poisoned severely by as little as 2 cc. of the solution, while others have borne total amounts of 50 cc. during prolonged anesthesia, with no obvious injury.

Many use morphine as a routine before general anesthesia without recording the fact, and it is often impossible to know whether it was used in a given case. One is often practically certain that morphine was used in cases in which the effects following the use of very small doses of Evipal Soluble in nearly normal patients greatly exceed those which are to be expected from such doses of the anesthetic alone. Geiger [35] reported that he injected 1 cc. of morphine [sic] followed by 25 cc. of Evipan Sodium during an operation lasting three hours on a man of 70 years with excellent results. That suggests either extraordinary good fortune or an extraordinary patient.

The manufacturer does not recommend the use of morphine, but its use permits the utilization of smaller doses of the anesthetic with smoother anesthesia and fewer "failures." The smaller doses of the anesthetic are attended with less frequent tremor and convulsive movements, which often interfere with operation. It is well known that Evipal Soluble and morphine are both depressants of the respiratory center, and there can hardly be a serious question that toxic doses act synergistically to depress the respiration. With wisely selected therapeutic doses of each, the synergistic action on the respiration is often less than that of the total dose of Evipal Soluble which would be required alone to induce the same degree of anesthesia. The Council's referee believes that small doses of morphine—seldom more than 10 mg.—are often desirable; but there is no justification for using larger doses of morphine in the form of omnopon or pantopon than would be used in the form of the official morphine sulfate.

One may say that the dose of Evipal Soluble solution varies from 0.5 to 10 cc. for short operations or for induction anesthesia, dependent on many conditions, not all of which can be known in advance. The Council's referee does not believe that larger doses or repetitions of fractional doses should be used for prolonged anesthesia. Stohr [36] stated that he had discussed the question of dosage with many surgeons and that it becomes increasingly evident that there is hardly another drug which requires such individualization for safety.

V. ANTIDOTES

Evipal Soluble has the actions of other barbiturates, differing mainly in its rapid decomposition in the liver. Any substance which counteracts the effects of other barbiturates and which acts promptly and without harm to the patient may be useful in treating poisoning with Evipal Soluble; but severe or fatal accidents sometimes follow the injection with such suddenness that little can be done to counteract the toxic effects. One is impressed with the frequency with which observers have reported that they had used lobeline, caffeine, strychnine, coramine, metrazol (cardiazol), epinephrine or oxygen with carbon dioxide and artificial respiration without success. Recent work suggests that picrotoxin may be valuable when we have accurate knowledge of the proper technic for its use under a variety of conditions. It is a very active agent, and capable of causing death when excessive doses are used.

The observation of von Brandis [13] that with increasing depth of anesthesia the analeptic action of several of the drugs commonly employed as antidotes to the barbiturates lessens and may even increase the depression in normal animals in deep narcosis helps to explain why these often failed to restore patients who had suffered collapse after the injection of Evipal Soluble.

Lundy [37] states that the safe intravenous injection of Evipal Soluble or other barbiturates induces anesthesia so slowly that surgeons complain of the delay; he suggested the addition of 25 mg. of the cardiac and respiratory stimulant pyridine beta-carbonic acid diethylamide to every cubic centimeter of the solution of the barbiturate. This procedure does not impress the referee favorably. Should severe respiratory depression result from overdosage with this method, it would seem to leave no satisfactory resource available.

VI. ADVANTAGES

Some of the advantages of Evipal Soluble can be stated only in general terms, because what constitutes an advantage in one case may be of slight importance in another. A patient's fear and anxiety increase the danger of a severe operation, and the avoidance of psychic disturbance is probably the greatest advantage possessed by Evipal Soluble anesthesia. With the injection of the solution the patient usually experiences nothing more than the prick of the needle before becoming drowsy and losing consciousness almost immediately. When the dose is calculated with skill and the drug is injected slowly in suitable cases, the depth of anesthesia is usually under control nearly equal to that with ether—better, according to a few enthusiasts.

Vomiting occurs less frequently than after ether. It is probable that it occurs after Evipal Soluble alone in about 1 per cent of the cases, but the conflicting testimony is hard to reconcile. Coryllos and Bass,[23] who used preliminary doses of one-third grain of pantopon, reported vomiting in 24.7 per cent of their cases in operations for thoracoplasty. Greenberger and Bass [38] reported that 6 per cent of their patients vomited after urologic operations. Several report that none of their patients vomited after the injection of Evipan Sodium alone, and Decker [39] stated that none of 112 patients vomited. He used morphine in doses of 20 mg. half an hour before the operation.

Evipal Soluble does not irritate the respiratory passages. This is an especial advantage for patients having bronchial or pulmonary inflammation, and pneumonia occurs less frequently after its use than after ether. Decker also reported that no

32. Anschuetz, W.: Zentralbl. f. Chir. **60:** 1361, 1933.
33. Laesecke, M.: Zentralbl. f. Chir. **60:** 1042, 1933.
34. Gautier, J.: Bull. et mém. Soc. nat. d. chir. **60:** 1140, 1934.
35. Geiger: Zentralbl. f. Chir. **62:** 2243, 1935.
36. Stohr, R.: Wien. klin. Wchnschr. **48:** 1618, 1935.
37. Lundy, J. S.: Proc. Staff Meet., Mayo Clin. **10:** 791, 1935.
38. Greenberger, M. E., and Bass, Sara: Urol. & Cutan. Rev. **39:** 555, 1935.
39. Decker, R.: München. med. Wchnschr. **81:** 395, 1934.

case of pneumonia occurred in his series of 112 operations, mainly laparotomies. The anesthetic does not appear to injure the healthy vital organs. The absence of a mask is important in operations about the head.

VII. DISADVANTAGES

Little is said in the advertising about the disadvantages of Evipal Soluble, but many of these are apparent from the present discussion. First in importance, and far outweighing all others, are the uncertainty of the proper dosage in many cases, and the uncertainty regarding the relative contraindications, because so many conditions must be considered and each given its due weight when calculating the dosage.

Evipal Soluble depresses the respiration and the circulation; often sharply, sometimes fatally. Lauber [29] states that the fall of blood pressure is greater in patients with arterioslerosis than in normal persons. It is probable that this explains some of the deaths that have been reported in elderly patients. The fine or coarse tremor (less frequent after morphine), the incomplete relaxation of the abdominal muscles, especially in the presence of reflexes, the necessity of a skilled anesthetist, and the undue prolongation of narcosis even after small doses in some cases are among the disadvantages, some of which have been enumerated previously in this discussion.

Landor and Salleh [40] reported a case of widespread paralysis which followed the use of Evipan Sodium. There is no evidence that the anesthetic caused the paralysis. Peterkin [41] reported dermatitis in an anesthetist. Belfrage [42] stated that during the previous year a few cases, three or four he believed, had been described in which Evipan had been followed by severe disturbance of the blood, taking the form of myelogenous leukemia.

VIII. INDICATIONS AND CONTRAINDICATIONS

There is a want of agreement concerning the indications and contraindications for the use of Evipal Soluble. The Anesthetics Committee of the Medical Research Council [3] stated that thorough pharmacologic work had been carried out in Germany with Evipan. The individual experiments may have been thorough, but the published results were of limited scope and left much to be learned at the expense of patients. Sauerbruch [43] stated that the manufacturers should have made exhaustive studies of the drug before marketing it. This statement was based on the fact that many accidents to patients had occurred. Domanig [44] expressed agreement with Sauerbruch. Domanig presented an excellent discussion, but much has been learned by clinical experience since his paper appeared.

Evipal Soluble finds its special field of usefulness in the hands of those who are skilled in its use, for light anesthesia or the "rausch" of German anesthetists, which is suitable for short operations, such as simple incisions, changing painful dressings and the removing of teeth; and also for inducing anesthesia which is to be continued with ether or some other volatile anesthetic, provided the patients are in good general condition and are free from disturbance of the circulatory or respiratory system.

One who has had an unfortunate experience with a new anesthetic is inclined to consider certain conditions of the patient in whom the accident occurs as contraindications for that anesthetic. The result is that there are many contraindications reported which do not find general acceptance. Many hold that there is no absolute contraindication but that there are relative contraindications which vary in degree from the almost negligible to nearly absolute. One finds it warmly recommended for conditions that others hold to constitute absolute contraindications.

The consensus of those whose opinions have impressed the Council's referee is that the relative contraindications include liver disease or liver dysfunction, severe septic conditions, ileus, peritonitis, extensive hemorrhage, anemia, emaciation, general weakness, cachexia, phlegmon of the throat, extensive arteriosclerosis, and depressed state of the circulatory or respiratory system. No hard and fast rule can be stated, and skill and experience are required in many cases to determine whether a given condition, or combination of conditions, constitutes an absolute bar to the use of the drug.

Any relative contraindications must be taken into consideration when calculating the dosage, and with that understanding the drug may be indicated when its advantages outweigh its disadvantages.

IX. SEVERE, BUT NOT FATAL, ACCIDENTS

Weese [45] stressed the "extraordinary therapeutic ratio of Evipan Sodium, because it has a strikingly slight action on the respiratory and vasomotor center." He had previously stated that there had not been one dangerous occurrence among 10,000 cases of Evipan Sodium narcosis but that there had been one unexplained death. That death was "unexplained" merely because adequate studies of the actions of Evipan Sodium had not been made under widely varying conditions. It was an Evipan Sodium death (reported by Petermann).

Anschuetz [32] reported at the German Surgical Congress in April 1933 seven severe accidents that had followed the use of Evipan Sodium. There was severe circulatory failure in five and moderate failure in one. Three of the patients died within thirty-six hours. The Council's referee believes that the drug was partly responsible for one of these deaths and has included it in a list to be given presently.

Stimpfl [46] collected twelve additional reports of severe accidents involving disturbance of the respiration or circulation or both. He attributed these accidents to overdosage and held that they were avoidable. Toxic actions are evidence of overdosage, but it is precisely because overdosage is so difficult to avoid with surely effective doses that accidents continue to occur.

Ménégaux and Sechehaye [47] reviewed the literature embracing about 200 papers dealing with Evipan Sodium. They tabulated forty-nine severe accidents, giving the name of the author, the sex, age and weight of the patient, a brief history, the dose (often unknown), the rate of injection, the interval before the onset of the accident, its character, antidotes employed, and the result of the treatment. Five of these patients died, four of them within thirty-six hours; but those authors do not attribute any of these five deaths to the anesthetic. One of the severe accidents occurred after an interval of three days; the referee does not believe that it should have been included in the list, since he does not find any evidence that it was caused by Evipan Sodium.

The onset of the accident was immediate or within five minutes in eighteen cases; in nearly all the others the time of onset is not recorded. In nearly every case there was asphyxia, cyanosis or collapse. Many others have reported severe accidents, and among these Coryllos and Bass [23] as late as 1936. The study of severe accidents throws much light on the cause of death in other cases, and, while the subject is obviously of great importance, a comprehensive discussion of these reports would require more space than can be devoted to it here.

X. DEATHS

Anschuetz [32] also reported eight deaths following the use of Evipan Sodium at the same time that he reported the seven severe accidents. These were reported by those who had used Evipan Sodium in 6,460 operations. Several subsequent writers have stated that these eight deaths occurred in the first 6,460 cases in which the drug was used. This is not the case; there had been about 25,000 anesthesias with it apparently, and many reported that there had been no accident.

Anschuetz stated that these deaths were due to relative overdosage but that one reported by Petermann was serious; meaning, presumably, that it was not predictable. Some subsequent writers have concluded that all these eight deaths were due to the anesthetic; others have attributed only one or two of them to the drug.

Stimpfl [46] listed eleven deaths, including those reported by Anschuetz, one reported by Gritti, one by Killian and one that "occurred in a small hospital."

There was paralysis of respiration in 34 per cent and severe depression or paralysis of the heart or circulation in 38 per

40. Landor, J. V., and Salleh, Mohamed: Brit. M. J. **2**: 940 (Nov. 24) 1934.
41. Peterkin, G. A. G.: Brit. M. J. **1**: 456 (March 10) 1934.
42. Belfrage, D.: Proc. Roy. Soc. Med. **29**: 709, 1936.
43. Sauerbruch: Zentralbl. f. Chir. **62**: 600, 1935.
44. Domanig, E.: Wien. klin. Wchnschr. **48**: 1245, 1935.
45. Weese, H.: Klin. Wchnschr. **12**: 1309, 1933.
46. Stimpfl, A.: München. med. Wchnschr. **80**: 1429, 1933.
47. Ménégaux, G., and Sechehaye, L.: J. de chir. **44**: 363 (Sept.) 1934.

cent of the total of twenty-nine cases—nineteen accidents and ten deaths—with details lacking in the case reported by Gritti. The high percentage of circulatory disturbances is of special importance, because it shows that the statement of Weese that fatal doses always cause death by paralysis of respiration is dangerously misleading. This statement is also made in the literature issued by the manufacturers in such a way as to imply that it is true in clinical cases.

Ménégaux and Sechehaye[47] tabulated twenty-two deaths that had occurred during or following anesthesia with Evipan Sodium in about 23,000 cases. They state that Jacobson reported another death after the table had been prepared. It is not included in the present discussion because the data do not indicate the cause of death sufficiently. These twenty-two deaths embrace all that Anschuetz had reported and all—with possibly one exception, that reported by "a small hospital"—which Stimpfl listed. These twenty-two deaths are listed here with the numbers used by Ménégaux and Sechehaye, with references to original reports when possible, in order to facilitate the present discussion and for the convenience of the reader in consulting original reports.

Deaths listed by Ménégaux and Sechehaye:

1. Moulonguet: *Presse méd.* **42:** 337.
2. Boden: *Fortschr. d. therap.*, 1933, No. 12, p. 718.
3. Ohse: *Zentralbl. f. Chir.* **60:** 2380, 1933.
4. Sicard: *Bull. et méd. Soc. nat. de la chir.* **60:** 573, 1934.
5. Stimpfl, A.: *München. med. Wchnschr.* **80:** 1429, 1933.
6. Hogenauer: *Zentralbl. f. Chir.* **61:** 517, 1934.
7. Reschke: *Zentralbl. f. Chir.* **62:** 1703, 1935.
8. Gritti (no reference given).
9. Hammermann: Thesis; not availabe to referee.
10. Moerl: *Zentralbl. f. Chir.* **60:** 877, 1933.
11. Schmitt (reported by Schmutzler): *Klin. Wchnschr.* **12:** 1309, 1933.
12. Schmitt (reported by Schmutzler): *Klin. Wchnschr.* **12:** 1309, 1933.
13. Petermann: *Zentralbl. f. Chir.* **62:** 600, 1935.
14. Döderlein: *Zentralbl. f. Chir.* **62:** 598, 1935.
15. Ménégaux and Sechehaye: *J. de chir.* **44:** 363, 1934.
16. Hoevelborn: *Klin. Wchnschr.* **13:** 372, 1934.
17. Killian: *Arch. f. klin. Chir.* **177:** 53, 1933.
18. Holtermann: *München. med. Wchnschr.* **80:** 1547, 1933.
19. Nordmann: *Zentralbl. f. Chir.* **62:** 598, 1935.
20. Duboucher, Megnin and Sarlin: *Bull. et mém. Soc. de chir.* **60:** 572, 1934.
21. Harms: *München. med. Wchnschr.*, 1934, p. 847.
22. Boit: *Deutsche med. Wchnschr.* **59:** 983, 1933.

It is to be observed that some of the references given here apply to papers published subsequent to that of Ménégaux and Sechehaye.

Ménégaux and Sechehaye eliminate three of these deaths (6, 15 and 9) as certainly due to disease; they state that the cause of death in two cases (8 and 19) is unknown. However, one of these (Nordmann's) is of especial interest because Anschuetz said of this "Do not blame Evipan too much." Nordmann informed Stimpfl that the patient, a man of 86, suffering with gangrene, received a dose of 8 cc. and died from heart failure due to the anesthetic. Four of the deaths (13, 16, 18 and 20) are listed as "probably due to Evipan Sodium" but with serious reservations in three. In five cases (3, 4, 11, 12 and 21) the anesthetic is stated to have been absolutely contraindicated and in nine (1, 2, 5, 6, 7, 10, 12, 14 and 17) it was relatively contraindicated. There was overdosage in eight. They state that it is possible that twelve deaths (3, 5, 6, 7, 10, 11, 12, 13, 14, 17, 18 and 19) were due wholly or partly to Evipan Sodium.

The onset of the accident—not the time of actual death—was "immediate" in seven cases (1, 2, 6, 18, 20, 21 and 22), within one-half to fifteen minutes in six (3, 4, 10, 12, 14 and 17) and "shortly," "at end of operation," or "in some minutes" in three cases (5, 7 and 13).

It would be a remarkable coincidence if there were no immediate connection between cases of overdosage and contraindications and the deaths that followed. There would be no object in mentioning a death under the circumstances if there were no connection between the anesthetic and the cause of death; nevertheless, many of the authors, including Ménégaux and Sechehaye, deny that the deaths which they report were caused by the anesthetic. It is practically certain that some of these deaths would be avoidable in the light of our present knowledge. It is probable that some of these patients would have died with any anesthetic and that some would have died shortly without any anesthetic or operation; but the present analysis is intended to direct attention to ways of avoiding accidents, not to accuse any individual anesthetist of carelessness.

Stohr and Niederland[48] tabulated fifteen deaths which they considered as certainly, or almost certainly, due to Evipan Sodium. These include twelve of those reported by Ménégaux and Sechehaye and three reported by Steinbrück. Desplas[49] attributed twenty-three deaths to Evipan Sodium, with the cause of another in doubt. His list includes three duplications, the record of one which was apparently only a minor accident, not a death, and one of which the referee finds no other record (Bassler's). Two deaths reported by Schmidt and included in the list of Ménégaux and Sechehaye were also reported by Schmutzler.[50]

The referee has collected reports in the literature of twenty-one deaths in addition to the twenty-two reported by Ménégaux and Sechehaye and has analyzed independently the original reports of all but three of the twenty-two included in the list of those authors. The reports of these twenty-one deaths will be reviewed briefly. The dates of the reports are given in the text because it is of interest to consider the list historically. It is certain that some deaths which occurred early in the use of Evipan Sodium were attributed to other causes or to causes unknown, because it was supposed that the anesthetic was free from danger. (Cf. comments on death reported by Petermann). Unfortunately, the date of published reports does not always coincide with the date of the accident.

1. Baucks[51] (1933) reported that a patient with peritonitis, appendicitis and intestinal paralysis collapsed after the injection of 3 cc. of Evipan Sodium; the pulse was imperceptible; the intended operation was not performed; there was slow improvement; death resulted from peritonitis after twenty-four hours. The referee believes that this was a most unfavorable case for the use of Evipal Soluble and that the anesthetic was a contributory cause of death. Baucks also reported that a man of 66 suffered severe collapse after the injection of 2 cc. of Evipan Sodium but recovered; the patient died of intestinal paralysis after an interval of thirty-six hours. It is impossible to state whether the anesthetic hastened the death.

2. Zantop[52] (1933) reported that the injection of 4 cc. of Evipan Sodium caused sleep lasting three hours in a patient suffering with meningitis. Weakness of the heart and respiration necessitated the use of restoratives; death occurred after an interval of thirty-six hours. The anesthetic probably contributed to the cause of death, which would have occurred shortly had no anesthetic been used.

3. Ducuing and Fabre[53] (1934) attributed a death with one of their first eight cases to Evipan Sodium and add "Naturally, we dropped it." The referee accepts their opinion without having had an opportunity to analyze the procedure.

4 and 5. Monod[54] (1934) reported two deaths following the use of Evipan Sodium. He stated that these deaths were not due to the anesthetic, but Desplas, who heard the report, maintained that the drug caused the deaths. Both patients were poor risks, one with pulmonary abscess complicated by meningitis; the other had cirrhosis of the liver. The referee believes that the anesthetic was at least partly responsible for the immediate deaths but that both patients would have died had it not been given. That may be the basis of Monod's contention that the drug was not to blame. One may be permitted to ask why Monod reported them if the drug was not at least partly responsible for the deaths.

6. Napier and Petrie[55] (1934) reported that a man in a very toxic state died with cardiac collapse though "usual precautions were taken." The intended operation was not performed, and this was apparently a case in which the anesthetic caused death; but details are lacking.

7-13. Slot and Galley[56] (1934) reported nine deaths of which they had secured reports. These include one of their own

48. Stohr, R., and Niederland, W.: Wien. klin. Wchnschr. **48:** 993, 1935.
49. Desplas, B.: Bull. et mém. Soc. nat. d. chir. **60:** 1129, 1934.
50. Schmutzler: Klin. Wchnschr. **12:** 1309, 1933.
51. Baucks, K.: Zentralbl. f. Chir. **60:** 306, 1933.
52. Zantop, H.: Med. Klin. **29:** 782, 1933.
53. Ducuing, J., and Fabre, P.-Ch.: Bull. et mém. Soc. nat. d. chir. **60:** 1128, 1934.
54. Monod, R.: Bull. et mém. Soc. nat. de chir. **60:** 318, 1934.
55. Napier, R., and Petrie, P. W. R.: Brit. M. J. **2:** 534, 1934.
56. Slot, G., and Galley, A. H.: Brit. M. J. **2:** 201, 1934.

patients, one reported by Westminster Hospital and five others for "some of which they are indebted to Dr. Morrison." It would appear that this Dr. Morrison was the medical representative of the manufacturers, but such is not stated by the authors. The referee believes that two of the nine deaths may be dismissed as being due to other causes. No. 7 of the present series (the first of these authors) was a patient of the authors. A man of 70 was toxic and suffered from chronic bronchitis, fatty myocarditis, cloudy swelling of the heart and kidney, carcinoma of the tongue, edema and congestion of the lung. He received ⅓ grain of omnopon and 1/150 grain of scopolamine followed after an hour by the injection of 8.5 cc. of Evipan Sodium. Comment is superfluous except to state that the patient survived for sixteen hours. It is an astonishing record for the date.

8. (Reported to Slot and Galley by Westminster Hospital.) Death was almost immediate in an extremely unfavorable case after the injection of 3 cc. The necropsy revealed "a piece of tartar as large as a tooth" lodged in the glottis. It was suggested that it caused death. The referee has studied this report and has concluded that the patient probably died of Evipal Soluble, but certainty is impossible.

9. A man of 67 with renal cardiac diseases and bronchitis received an injection of 7 cc. and died under the anesthetic.

10. A woman of 27 received an injection of 10 cc. of Evipan Sodium for an appendectomy and died during the operation. Such a dose is contraindicated in appendicitis, and the referee believes that it caused the death of the patient.

11. A man of 64 had chronic myocarditis, circulatory failure, edema, hydrothorax and a severe toxic oral state; he received an injection of 10 cc. and died "shortly." This is an excessive dose for a man in such a condition, and the cause of death seems obvious.

12. A woman of 50 with advanced cardiac disease and oral sepsis received an injection of Evipan Sodium and died from respiratory and cardiac failure.

13. A woman of 60 with severe rheumatoid arthritis and septic teeth, with extensive myocardial degeneration (shown at necropsy) received an injection of 6 cc. of Evipan Sodium and died at the end of the operation.

14-17. Steinbrück[57] (1934) reported two deaths and subsequently reported two more. Three of the four are included in the list of fifteen deaths of which reports were collected by Stohr and Niederland. The first of these four (in the referee's list) was that of a woman of 48 whose general condition was poor, in whom there was a diagnosis of phlegmon of the mouth and throat with beginning edema of the glottis. The slow injection of 3 cc. and then of 1 cc. was followed by a sudden change for the worse, cyanosis, superficial respiration, and failure of the pulse. Necropsy revealed also a septic spleen, dilated heart and diseased liver. A less favorable case would be hard to find.

A man of 84 suffering with cancer of the breast received an injection of 7 cc. During a rapid operation, the heart and respiration failed. Restoratives were applied and the patient improved, but he died the next morning. Necropsy showed cancer of the stomach and fatty infiltration of the liver with some pulmonary edema.

A strong, muscular man of 27 suffering with syphilis received an injection of Evipan Sodium for anesthesia for a plastic operation on the palate. There was a pause with the onset of sleep, because of movements, and then a total of 24 cc. (including the first portion) was injected during an operation lasting forty-five minutes. Severe asphyxia was followed in the afternoon by death. Steinbrück states that this dose seemed justifiable on the basis of previous reports. All these four deaths occurred in 1933, but this report was made in 1934.

A man of 70 received an injection of 13 cc. of Evipan Sodium for an operation for hernia lasting thirty-five minutes. Cyanosis developed while the circulation remained good, but all efforts at restoration failed. After these deaths Steinbrück stated that they used Evipan Sodium only for short operations, for which they used from 2 to 4 cc. to induce sleep and followed this with ether. It is obvious that Steinbrück attributes these deaths to the anesthetic.

57. Steinbrück: Zentralbl. f. Chir. **62**: 595, 600, 1935.

18. Barnsley[58] (1934) "was moved by the report of Slot and Galley, and because the mortality from Evipan assumes alarming proportions" to report the following death. A man of 70, suffering from dysphagia, was admitted for esophagoscopy; he was frail and cachectic. After the injection of 5 cc. the pulse became thready at once and finally stopped. Necropsy showed that "the stomach was solid with carcinoma." The anesthetic was the immediate cause of death, though the patient would have died shortly without it.

19. Nordentoft[59] (1935) reported that a woman of 64 suffering with cardiac dilatation died about three minutes after the injection of 7 cc. of Evipan Sodium, with respiratory and cardiac failure. Carcinoma of the uterus had been suspected, and the woman, almost paralyzed by fear, had insisted that she would die, even though assured that only a minor operation was to be performed. The nervous condition indicated the use of Evipal Soluble, but the patient was an extremely poor risk for other reasons.

20. Kamniker and Rintelen[60] (1935) reported the death of a man of 70 and that of a woman of the same age. The man died after an interval of three days. The referee does not include this death in the list of twenty-one which is given here. The woman was severely cachectic; she received an injection of 7 cc. of Evipan Sodium, which was followed after five minutes by failure of the heart and respiration. It seems probable that both patients received morphine, though it is not mentioned in the report. It was used in other cases, and its use seems to have constituted a routine procedure.

21. Greenberger and Bass[38] (1935) reported three deaths following the use of Evipal Soluble in fifty-two procedures. One patient was severely toxic with perineal abscess and severe infection and had a damaged heart. He received an injection of 10 cc. of Evipal Soluble and died within about four minutes from respiratory and cardiac failure. The dose was excessive under the circumstances, and the cause of death seems obvious. Muscular movement induced by the anesthetic contributed to injury of the bladder in one case and thereby probably contributed indirectly to the cause of death in one of the three patients. The third death was apparently due to other causes and does not require further consideration here.

It is obvious that, so long as reports are made without the name of the surgeon or anesthetist in charge, one cannot be absolutely certain that one has avoided duplication in every case. The referee has tried to avoid such duplication, and, on the other hand, he may have omitted some deaths, such as that "reported by a small hospital."

SUMMARY AND CONCLUSIONS

Evipal Soluble (Evipan Sodium) was introduced as a general anesthetic to be injected intravenously before adequate studies had been made of it under a great variety of conditions.

Evipal Soluble probably has a narrow field of usefulness in which it may be employed with relative safety provided it is used with skill and with due regard for its limitations. The contraindications—both relative and absolute—are numerous, but they have not been determined with sufficient precision to permit of the use of the substance with absolute safety in many conditions.

Reports of severe and fatal accidents have been discussed. The referee has examined the readily available data concerning a number of deaths which have followed the use of Evipal Soluble (Evipan Sodium). It is believed that the anesthetic is wholly or partly responsible for forty-three deaths listed in this report, though several of these deaths would have occurred shortly with any anesthetic, and in the absence of any.

It is probable that the preliminary use of morphine contributed to the cause of death in some of these cases. The failure of some operators to report the use of morphine increases the difficulty of analysis of the cause of death. While morphine may have contributed to the cause of death in some cases, as stated, it is equally possible that it lessened the danger in others.

58. Barnsley, A.: Brit. M. J. **2**: 329, 1934.
59. Nordentoft, J.: Zentralbl. f. Chir. **62**: 2413, 1935.
60. Kamniker, K., and Rintelen, G.: Deutsche Ztschr. f. Chir. **244**: 571, 1935.

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SATURDAY, APRIL 3, 1937

SPRAY RESIDUE ON FOODS

In order to minimize the possibility of poisoning from foods contaminated by lead or other metallic spray residues, the federal government has established maximum values for the amounts of these metals that may be present in sprayed fruits intended for interstate commerce. The Council on Foods of the American Medical Association has voted that no food shall use the seal of acceptance if it contains more than two parts of lead per million of food. Tolerances for arsenic and copper also have been adopted. Laws to protect consumers of fruits and vegetables distributed in intrastate commerce exist in only two states, Colorado and Michigan. A recent report [1] emphasizes the urgent need for state laws of this type. Analyses were made on various lots of apples of different varieties intended for local distribution in Iowa, a state without spray residue regulations. Lead was determined by the diphenylthiocarbazone procedure as an index to the amount of spray residue present. Although most of the samples contained amounts of lead within the 1935 federal tolerance of 0.018 grain per pound (equivalent to 2.5 parts per million) five lots showed larger amounts, ranging from 0.024 to 0.027 grain per pound.

Studies were also made to detect possible toxic effects of the sprayed apples. Both normal human subjects, who ate two apples daily from fall until early spring, and guinea-pigs fed apples from the same source were used. Blood smears were made at regular intervals and treated with a modified Mason's methylene blue stain, a stain said to give the most consistent results in the detection of the effects of lead as revealed by the blood picture.[2] The smears from both the human subjects and the guinea-pigs gave no indication of increased amounts of basophilic materials over that present in normal controls, thus indicating that the small amounts of lead ingested under the conditions of the experiment exerted no detectable toxic effects. One case was reported, however, of a person who ate three apples from a sprayed orchard and developed symptoms of arsenic poisoning shortly thereafter. The apples, he noted, were coated with a whitish substance, which he partially removed with a handkerchief. A severe diarrhea developed on the following day and continued for a second day. Subsequently a marked anal itching developed, followed by an urticarial type of dermatitis, which spread rapidly over the entire buttocks. Twenty-four days after the patient had eaten the apples, and shortly after he was admitted to a hospital, an itching maculopapular rash appeared in the lumbar region and soon spread over the entire trunk and extremities. The rash disappeared in a few days and the patient made an uneventful recovery. Arsenic was found in the patient's urine following admission to the hospital and the case was diagnosed as arsenic poisoning from the spray residue on the apples.

Even though no definite evidence of toxicity was observed in the subjects who ate sprayed apples as described, the fact that one case of arsenic poisoning from sprayed fruit was observed and the lead content of some lots of apples exceeded the federal tolerance warrant the author's recommendation that applegrowing states should enact laws to protect consumers against spray residues on fruits and vegetables. The use of the 1 per cent hydrochloric acid rinse procedure outlined by the United States Department of Agriculture [3] is suggested as a simple and reliable procedure, which would at least mitigate a potential danger.

1. Heeren, R. H., and Funk, H. B.: Toxicity of Fruit Sprays, Pub. Health Rep. **52**: 8 (Jan.) 1937.
2. McCord, C. P.; Holden, F. R., and Johnston, Jan: Basophilic Aggregation Test in the Lead Poisoning Epidemic of 1934-35, Am. J. Pub. Health **25**:1089 (Oct.) 1935.
3. Farmer's Bulletin 1752, U. S. Department of Agriculture, August 1935.

SYPHILIS IN THE MAGAZINES

The tabu against discussions of syphilis in newspapers and popular magazines is no more. A few diehards among the editors continue to avoid the subject, but general recognition of its importance is spreading rapidly. Much credit attaches therefore to the Chicago *Tribune,* which apparently saw the trend of public thought in time to open up the subject before other newspapers or magazines ventured the chance of public disapproval by seriously discussing this problem.

In the March and April issues of the *Reader's Digest* (edited by DeWitt Wallace and Lila Bell Acheson) articles have been published by Drs. John H. Stokes and Thomas Parran which are models for this type of discussion going to the public. There is no exploitation of the writer; there is excellent presentation of the subject; there is proper consideration of the public health and private practice aspects of the subject. Surgeon General Parran points out that free drugs and reliable laboratory service made available to private physicians would permit many marginal patients able to pay only small amounts for treatment to be served by a personal physician instead of being shifted to the impersonal public clinic. In a recent address he empha-

sized also the danger of having public demand for medical service created beyond the ability of either the medical profession or the public to supply that service.

Another periodical that has contributed notably in recent articles to the proper exploitation and advancement of medical service is the *Redbook* (under the editorship of Edwin Balmer). An earlier article by Morris Markey, a reporter of considerable repute, revealed to the public the questions at issue with relationship to the problem of state medicine. In the April issue of the *Redbook* he discusses the present status of the syphilis problem. Mr. Markey provides not only a brief history of the advancement of our knowledge of this disease but also explicit directions for the public as to what to do when confronted with the possibility of a case in the reader's own family. It is doubtful whether any better advice has been given by anybody than appears in the following concluding three paragraphs of his article:

> The rule becomes simple. Take every possible precaution against infection. If you think you might have been exposed to infection, through a kiss or any other contact, take the easy precaution of soap and water. If any symptoms at all appear, don't groan in secret and horrified misery. Get to a doctor. The blood test is a simple and painless affair, requiring about two minutes of your time. It will tell you whether to go on home and forget your anxieties, or whether to tell your doctor that the quicker he begins his treatments, the quicker you will be over with the thing—perfectly normal again, healthy, able to marry and have children with no fear of the consequences.
>
> The blood test is not expensive. You can get one for a dollar or two, or you can get it free by going to a clinic, if you can't possibly afford to pay your doctor. You can get treatment free, too, if you can't afford to pay your doctor.
>
> If you do not know a doctor, or how to find the clinic, call up your county medical association—the number will be in the phone book—or call up your local public health director. Whatever you do, place yourself immediately in the hands of a medical man. Do, literally, everything he tells you to do, for it is by his help, and his alone, that you will get well—and that you will avoid passing the disease on to some other poor victim.

In the *American Mercury* there is a flippant but at the same time somewhat perspicacious article by Anthony M. Turano pointing out many of the inconsistencies in our attitudes on this subject. It is very easy to be sarcastic now but it is doubtful that much is to be gained by pummeling a dead body. The prudery in regard to syphilis has just about vanished and the great danger now, as said in THE JOURNAL some weeks ago, is overemphasis. Certainly it would be too much to hope that all state legislatures would immediately pass adequate laws in relationship to the control of venereal diseases. Legislatures seem either to be twenty years ahead of what medicine can prove or twenty years behind what it already has proved.

Attention should also be called to the manner in which *Time, News Week, Literary Digest* and *Collier's* have considered this subject. Apparently our editors have merely been waiting for the opportunity to join in this campaign and now that the ground has been broken, we may expect a reasonable amount of discussion in all periodicals devoted to current interests.

CONTRACEPTIVE ADVICE, DEVICES AND PREPARATIONS STILL CONTRABAND

The United States circuit court of appeals for the second circuit, Dec. 7, 1936, affirmed a decree of the United States district court for the southern district of New York dismissing an action brought by the United States for the forfeiture of a package offered for importation, containing certain articles to prevent conception; namely, 120 pessaries more or less.[1] These pessaries, it appears, were sent by a physician in Japan to a physician in the United States, for trial in her practice and an expression of her opinion as to their usefulness for contraceptive purposes. The tariff act of 1930,[2] which prohibits the importation of articles for the prevention of conception, makes no exception in favor of physicians or in favor of the importation of contraceptive articles for the prevention or cure of disease. The government, therefore, instituted proceedings to have the pessaries offered for importation forfeited. Defeated in the trial court, it appealed to the United States circuit court of appeals for the second circuit, a circuit covering only three states, Connecticut, New York and Vermont. "The question is," said the appellate court, "whether physicians who import such articles as those involved in the present case in order to use them for the health of their patients are excepted by implication from the literal terms of the statute." After quoting the law of the state of New York, which permits the furnishing of articles for the prevention of conception to physicians who may in good faith prescribe their use for the cure or prevention of disease, the circuit court of appeals held that the tariff act of 1930 forbidding the importation of articles for the prevention of conception did not bar the importation of articles employed by physicians in their professional practice for the purpose of saving life or promoting the well being of their patients.

The circuit court of appeals seems to have based its decision in part on the assumption that the tariff act of 1930, so far as it relates to the importation of articles for the prevention of conception, embraces only such articles as Congress would have denounced as immoral if it had understood all the conditions under which they were to be used. In the opinion of the court, the purpose of the act "was not to prevent the importation, sale, or carriage by mail of things which might intelligently be employed by conscientious and competent physicians for the purpose of saving life or promoting the well being of their patients." One of the three justices of the court, however, although concurring in its judgment, said "There seems to me substantial reason for saying that contraconceptives were meant to be forbidden, whether or not prescribed by physicians, and that no lawful use of them was contemplated."

1. United States v. One Package, 86 Fed. (2d) 737.
2. 18 U. S. C. A., sec. 396.

The decision of the court obviously relates only to the matter before it; namely, the right of physicians to import contraceptive articles "for the purpose of saving life or promoting the well being of their patients." It rests largely on the assumption by the court as to what Congress would or would not have done if it had understood certain conditions, and on the assumption that Congress did not understand such conditions. Whether other United States circuit courts of appeal throughout the United States, of equal rank, and the United States Supreme Court, if the issue comes before it, will indulge in such assumptions, it is impossible to foresee. The present decision has no reference to the right of physicians to advise the practice of conception, or to operate on or treat a patient to accomplish that end, or to prescribe or supply articles for the prevention of conception. Federal law, in fact, except in the territories and the District of Columbia and in other places under the exclusive jurisdiction of the federal government, is powerless with respect to such matters, except as they involve the use of the United States mails or enter into interstate or foreign commerce. With those exceptions, the law of the state is supreme within its own territorial jurisdiction.

Now the National Committee on Federal Legislation for Birth Control, Inc., has sent out printed copies of the decision in the present case, under glaring headlines, "NOW BIRTH CONTROL IS LEGAL." It has sent to the secretaries of county medical societies throughout the United States letters proclaiming the decision "as a bill of rights for the medical profession" and requesting that the members of the societies be notified that "NOW contraception may take its rightful place in preventive medicine and public health" and that "physicians may NOW give contraceptive advice in public as well as private practice; that hospitals, dispensaries and public health agencies may—and should—NOW include birth control in their services." The committee, too, has suggested to editors that they bring to the attention of their readers information concerning the alleged establishment of "the legality of medical practice in the field of contraception." This propaganda is essentially misleading. The decision on which it is based means merely that physicians who desire to import pessaries for contraceptive purposes from Japan or other countries, through Connecticut, New York and Vermont, within the second judicial circuit of the United States, may do so.

Physicians who desire to import contraceptive devices and preparations through ports elsewhere than in New York, Connecticut and Vermont cannot rely altogether for protection on the decision of the circuit court of appeals for the second circuit; outside its own circuit its decision is not binding but is only of persuasive influence. In the District of Columbia and in the territories, the laws of the United States still forbid the giving of information or the distribution of devices and appliances for the prevention of conception and make no exception in favor of physicians. The decision on which the National Committee on Federal Legislation for Birth Control has relied to support its propaganda has and can have nothing to do with the legality or illegality of the practice of contraception within any state except as that practice may involve foreign and interstate commerce or the use of the mails.

COOPERATIVE MEDICINE

In the organization section in this issue of THE JOURNAL appears a discussion of cooperatives. Dr. James Peter Warbasse, president of the Cooperative League of the United States, has set forth his ideas of how cooperation may be applied to the provision of medical service, in a pamphlet published by the league under the title "Cooperative Medicine." It is difficult for him or for any one else to reconcile cooperative principles with any proposal to furnish medical service. He concludes that, since medical colleges and hospitals had low standards when they were owned and operated by physicians, consumer control would improve these standards; the medical profession, however, raised the standards, not any lay organizations or the government.

Dr. Warbasse suggests that the "cooperative method" requires a "group of 150 to 500 families, who should unite to employ a physician full time." Then he throws away the cooperative principle of equality and accepts the professional principle of the sliding scale in the conclusion that "it is best that the annual costs per member be graded according to family income." He would have three income classes, one of which would pay $40, one $20 and one $10 a year. Just how would this differ from the sort of contract medicine that has been built up by lodges and other groups, and still more frequently by unscrupulous promoters?

While he insists that "only high class physicians would be brought into the project," nowhere does he tell how this can be done in view of the opposition of physicians, which is based on the fact, learned from hard experience, that such methods lead to deterioration of service and attract only the incompetent and unethical physician. He warns groups to "beware lest a physician who is not well qualified for the position take the initiative in organization for the purpose of making a job for himself." This is exactly what has happened and what would continue to happen.

Dr. Warbasse is himself too thoroughly familiar with the conditions of good medical practice to suggest that one of the fundamental principles of cooperation should be put into operation; namely, buying at wholesale, selling at the market price, and distributing the difference as a "patronage dividend." He also realizes that the selection of a physician for others by the directors of the scheme would not please everybody. As to those who are not pleased, he says "There remains only one thing for them to do: that is, to withdraw from the

organization." Dr. Warbasse's essay leads to just one logical conclusion: A man who is both a sincere cooperator and a competent physician finds his intellect in a civil war; it is impossible to reconcile these two positions sufficiently to apply cooperative principles in practice to medical service.

Current Comment

POISON GAS

The threat of the use of poison gas in strife among European nations now casts its shadow over all the world. The British Medical Association has issued instructions to all physicians and pharmacists for the use of gas masks and the treatment of gas injuries. In most European countries physicians and pharmacists are the agents disseminating the information for combating gas attacks. Some governments have instituted drills in the use of gas masks by the people generally and have built gas proof cellars as places of refuge during attacks. America cannot overlook this potential menace which has accompanied the advances made by science. As poison gases are manufactured and used in industry as well as in civil strife, knowledge of the antidote and safeguards against injury should be made available. With an ever greater use of chemicals by the average citizen, there is an increasing toll of casualties arising from poison gases. Death will often result if the attendant cannot recognize the nature of the poison to which the victim has been exposed. Without special training a physician could not efficiently treat cases involving the newer organic poisons. Many agencies will be required to develop and collect accurate information on this subject and to disseminate the information in sufficient detail to make it usable to the physician, to his co-workers in the hospitals and pharmacies, and to the public at large. Such information is important in industry and in war.

EFFECT OF GARLIC ON THE FLAVOR AND ODOR OF MILK

In spite of several recent studies of the question, the source of garlic breath odor remains a somewhat controversial subject. Babcock,[1] in a United States Department of Agriculture bulletin, in 1925 reported a group of studies on cows which may throw some further light on this matter. The defined objectives mentioned in that report were to determine how garlic flavor and odor entered milk, to determine the length of time required after consumption of garlic for the flavor and odor to enter the milk, and to determine the length of time after cows consumed garlic before the flavor and odor disappeared from the milk. The garlic fed to the nine Jersey and seven Holstein cows used in the observations was of the variety commonly found growing wild. Only the garlic tops were fed and at the time of feeding were about ten or twelve inches high. Samples were taken from the milk of each cow at the time of milking, given a key number and cooled but not aerated. The samples were judged for flavor and odor by experienced judges who had no knowledge of the key. When samples of milk were taken between three and one-half and five minutes after feeding the garlic, only 12.5 and 6.3 per cent of the opinions rated the milk normal in flavor and odor, respectively. The brevity of this interval indicated that it was not necessary for garlic to be taken into the stomach of the cow before entering the blood stream and thence passing to the udder. In another group of experiments the cows were forced to inhale garlic odor for ten minutes and were then milked at varying intervals after inhalation. When the cows were milked two minutes after inhaling garlic for ten minutes the garlic flavor and odor were pronounced in the milk. The odor was even more pronounced than the flavor. To determine whether garlic could be detected in the blood, cows were fed two pounds of garlic tops, and blood samples were taken from the jugular vein sixteen minutes, thirty minutes and forty-five minutes after feeding. The sample drawn sixteen minutes after feeding was rated "not perceptible," as the judges failed to identify a garlic odor. In the two later samples the garlic odor was readily identified. A comparison of these blood tests with the milk tests showed what appears to be a discrepancy in time. This may be due to one or more causes. Thus, the garlic flavor and odor may have an affinity for fat and therefore pass rapidly from the blood to the milk. It may also be that garlic is more easily preserved in milk than in blood. The principal deductions, however, are obvious.

1. Babcock, C. J.: Effect of Garlic on the Flavor and Odor of Milk, Bull. 1326, U. S. Department of Agriculture, March 18, 1925.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARKANSAS

Dr. Vinsonhaler Is Still Dean.—Dr. Frank Vinsonhaler writes that he has not retired as dean of the University of Arkansas School of Medicine, Little Rock, and that the date of his retirement has not been determined.

Officers of State Health Board.—Dr. Fergus O. Mahony, El Dorado, was elected president of the state board of health at its quarterly meeting, Little Rock, February 18, succeeding Dr. William G. Hodges, Malvern. Dr. Melvin E. McCaskill, Little Rock, was chosen vice president.

Society News.—Dr. T. Duel Brown, Little Rock, among other speakers, discussed renal abnormalities before the Tri-County Clinical Society in Hope, February 25.——Dr. Fred H. Albee, New York, addressed the Pulaski County Medical Society at the University of Arkansas School of Medicine, Little Rock, February 15, on the value of electrically driven tools in bone surgery.

CALIFORNIA

Hospital Meeting.—The eleventh annual convention of the Association of Western Hospitals, Association of California Hospitals, western conferences of the Catholic Hospital Association and allied groups and sections will be held April 12-15 at the Biltmore Hotel, Los Angeles. According to the preliminary program, the following topics will be discussed: manifold obligations of the hospitals to the public; legislation and hospitals; group hospitalization; the interest of the patient is paramount; the growth, causes and cures of malpractice suits; employee welfare in the broader sense.

Lectures on Speech Defects.—Dr. Paul Moses, lecturer in speech defects, University of California Medical School, San Francisco, opened a series of lectures at University Hospital, February 24, with a talk entitled "The Significance of Phonetics in Medical Practice; Selected Topics from the Neurology of the Voice." He spoke, March 3, on "The Relationship Between Voice, Constitution and Character," and, March 10, "Pathology and Therapy of Speech and Voice Diseases." Dr. Moses concluded the series, March 17, with a lecture on "Functions, Diseases and Therapy of the Singing Voice."

Charter Week Celebration.—Clinics, lectures and the annual dinner of the University of California Medical School Alumni Association made up the program for the medical school's observance of "charter week," March 24. The lecturers included:

Ernest L. Walker, Sc.D., Treatment of Malignant Tumors.
Dr. Howard C. Naffziger, Back Pain.
Dr. Fred H. Kruse, Peptic Ulcer.
Hermann Sommer, Ph.D., Shellfish Poisoning.

The departments of medicine, pediatrics, obstetrics and gynecology, pathology and bacteriology cooperated in a symposium on syphilis in the morning, and the annual dinner was addressed by Monroe E. Deutsch, LL.D,, vice president and provost of the university, and Dr. Herbert C. Moffitt, clinical professor of medicine.

DELAWARE

Review Course on Obstetrics.—The Delaware Academy of Medicine, Wilmington, instituted a review course on obstetrics, March 11, to continue for six weeks. Dr. Philip F. Williams, assistant professor of obstetrics, University of Pennsylvania School of Medicine, Philadelphia, gave the first lecture on "Causes of Maternal Deaths—Based on Study of Philadelphia Deaths." Dr. Carl H. Davis, Wilmington, is completing the series. The state board of health and the New Castle County Medical Society are cooperating.

FLORIDA

State Medical Meeting at St. Petersburg, April 5-7.—The sixty-fourth annual meeting of the Florida Medical Association will be held at the Vinoy Park Hotel, St. Petersburg, April 5-7, under the presidency of Dr. Orion O. Feaster, St. Petersburg. Papers will be presented by the following:

Dr. Jewel G. Gainey, Blountstown, Some Observations on Blood Pressure.
Dr. Theodore F. Hahn Jr., De Land, Trichinosis.
Dr. William C. Blake, Tampa, Diagnosis of Coronary Heart Disease.
Dr. Turner Z. Cason, Jacksonville, Heart Block.
Dr. Joseph S. Stewart, Miami, Treatment of Tetanus.
Dr. Henry E. Palmer, Tallahassee, Syphilis.
Dr. Douglas D. Martin, Tampa, Acute Appendicitis in Children.
Dr. Wilbur A. McPhaul, Jacksonville, Cooperation of State Board of Health and Medical Profession.
Dr. Wiley M. Sams, Miami, Use and Abuse of the X-Rays in the Treatment of Skin Diseases.
Dr. Cayetano Panettiere, Miami Beach, Carcinoma of the Body of the Uterus.
Drs. Arthur H. Weiland and Charles R. Burbacher, Coral Gables, Gonorrheal Arthritis.
Dr. Lloyd J. Netto, West Palm Beach, Traumatic Surgery.
Dr. Harry Bernard McEuen, Jacksonville, Reaction Following Application of X-Ray Therapy.
Dr. Charles B. Mabry, Jacksonville, A Simplified Method of Treating Fractures of the Shaft of the Humerus.
Dr. Hermon Marshall Taylor, Jacksonville, Deafness from Drugs.
Dr. Joseph Ralph Vallotton, Daytona Beach, Recent Advances in the Diagnosis and Treatment of Asthma.
Dr. Gerard Raap, Miami, Use of X-Radiation in Conditions Other Than Malignancy.
Dr. Robert B. McIver, Jacksonville, Surgery of the Ureter.
Dr. Henry Mason Smith, Tampa, Hypoglycemic Shock Therapy in Schizophrenia with Report of Cases.

Dr. Morris Fishbein, Editor of THE JOURNAL, will address a public meeting in Williams Park Monday evening on "Food Fads and Follies." Dr. John H. J. Upham, Columbus, Ohio, President-Elect of the American Medical Association, will appear on the program. Other organizations meeting at the same time include the woman's auxiliary, the Florida Railway Surgeons' Association, Florida Radiological Society, Florida Society of Dermatology and Syphilology and the Florida Pediatric Society.

ILLINOIS

Refresher Courses on Obstetrics and Pediatrics.—A series of lectures on obstetrics and pediatrics is being offered throughout the state as a part of the national program to improve conditions for mothers and children in rural areas. The project is under the direction of a specially appointed committee on infant and maternal welfare in cooperation with the state department of public health, the state medical society, the Illinois Academy of Pediatrics and the American Committee on Maternal Welfare. Dr. Harold H. Hill, formerly associate in the department of obstetrics and gynecology, University of Illinois College of Medicine, Chicago, as field consultant, is in charge of arrangements. The series opened March 4 in Lincoln with a program for the DeWitt and Logan county medical societies. Dr. Louis Rudolph discussed the management of obstetric hemorrhage and Dr. Clifford G. Grulee, Evanston, infant feeding and prophylaxis of contagious disease. In Sangamon County the program opened March 11 at Springfield and in McLean County March 18 at Bloomington. Each series will run for six weeks consecutively.

Chicago

Hospital News.—Presbyterian Hospital expended $846,571.52 in 1936 to care for 11,503 patients in the hospital and 31,879 nonhospital patient visits. An additional $96,129.53 was expended to maintain the school of nursing and nurses' home, while the cost of free care given to 5,554 part pay and 2,437 free patients was $183,299.50.

Meeting on Conservation of Health.—The Chicago Medical Society held a public meeting on conservation of health, March 17, with Dr. Burt R. Shurly, Detroit, as the guest speaker. Dr. Shurly discussed the periodic health examination, and the following Chicago physicians spoke on special subjects: Drs. Austin A. Hayden, hearing; Nathan S. Davis III, heart; G. Henry Mundt, vision, and Arthur H. Conley, orthopedics.

Personal.—Mr. Harry N. Gottlieb has been elected president of the Michael Reese Hospital.——Dr. Arno B. Luckhardt, professor of physiology, School of Medicine, Division of the Biological Sciences, University of Chicago, has been elected a fellow in the International Society of Anesthesia Research in recognition of his discovery of ethylene as an anesthetic.——Dr. Livingston Farrand, who will retire as president of Cornell University, Ithaca, N. Y., June 30, was guest of honor at a banquet, March 12, given by 500 alumni of Cornell from the Chicago district.

Society News.—Drs. Walter Freeman and James W. Watts, Washington, D. C., addressed the Chicago Neurological Society, February 18, among others, on "Subcortical Prefrontal Lobotomy in the Treatment of Certain Psychoses."——The German Medical Society of Chicago was addressed, March 2, by Drs. Adalbert Klaptoz on "Dwarfism Resulting from Hypophyseal Tumor: Operation per Nasal Route," and Otto Meyer, New York, "The Clinical Syndrome of Latent Phlebitis."——At a meeting of the Chicago Society of X-Ray Technicians, March 4, Drs. Ralph G. Willy and Edson W. Carr discussed "The Use of Pitressin as an Aid in X-Ray Diagnosis" and "Darkroom Troubles" respectively. Dr. Marie Ortmayer demonstrated the gastroscope.

INDIANA

Society News.—Dr. Morris Edward Davis, Chicago, among others, addressed the Tippecanoe County Medical Society, Lafayette, March 9, on "Treatment of Hemorrhage Late in Pregnancy."——Dr. Charles P. Emerson, Indianapolis, discussed "The Emotional Element in the Etiology, Course and Prognosis of Disease" before the Indianapolis Medical Society, March 23.

IOWA

Personal.—Drs. Harley L. Sayler and Fred L. Wells, Des Moines, have been granted life membership in the Iowa State Medical Society.——Dr. Azel Ames Jr., formerly of Cincinnati, has been appointed assistant professor of surgery in the State University of Iowa College of Medicine, Iowa City.——Dr. Norman W. Phillips, Clear Lake, was guest of honor at a reception, March 5, in celebration of his completion of fifty years in the practice of medicine.

Speakers' Bureau Activities.—The speakers' bureau of the state medical society recently sponsored a series of lectures on medicine for relief workers, at the request of the director of medical relief of the Iowa Emergency Relief Administration. The bureau is also presenting weekly lectures at Drake University, Des Moines, for which students will be allowed one hour's credit. A series of lectures is also being arranged for the students of Upper Iowa University at Fayette.

Tuberculosis, Heart and Sanatorium Associations Meeting.—The Iowa Tuberculosis Association, the Iowa Sanatorium Association and the Iowa Heart Association held a joint meeting in Des Moines, March 11-12, with headquarters at the Hotel Savery. The first day was devoted to symposiums on prophylaxis and early diagnosis of heart disease, essentials of diagnosis of pulmonary tuberculosis, collapse therapy in pulmonary tuberculosis and coronary thrombosis, and the tuberculosis problem today was considered from various perspectives in a combined medical and lay program Friday.

KANSAS

New Health Officers.—The following physicians have been appointed county health officers:

Dr. William K. Fast, Atchison, Atchison County.
Dr. Fred L. Holcomb, Coldwater, Comanche County.
Dr. William S. Gooch, Fort Scott, Bourbon County.
Dr. Lawrence F. Schuhmacher Jr., Meade, Meade County.
Dr. William L. Wilmoth, Blue Rapids, Marshall County.
Dr. Merle L. Whitney, Virgil, Greenwood County.

Spring Assembly.—The annual spring clinical assembly of the Sedgwick County Medical Society will convene in the Allis Hotel, Wichita, April 6. Clinics will be held by members of the society and the rotating staff of the Sedgwick County Medical Society. Guest speakers include Drs. Edward W. Alton Ochsner, professor of surgery, Tulane University of Louisiana School of Medicine, New Orleans, and Henry M. Winans, professor of medicine, Baylor University School of Medicine, Dallas.

KENTUCKY

Personal.—Dr. Benjamin T. Black, Campbellsville, for more than eleven years coroner of Taylor County, recently observed the completion of fifty years in the practice of medicine.

Society News.—Dr. Marvin P. Rucker, Richmond, Va., addressed the Jefferson County Medical Society, Louisville, March 1, on "The Effect of Diet on Pregnancy," as guest of the Louisville Obstetrical and Gynecological Society. Flood activities were described by Drs. Hugh R. Leavell, health officer of the city, John D. Trawick, of the county, and Arthur T. McCormack, of the state.——Dr. Robert Julian Estill, Lexington, addressed the Bourbon County Medical Society, Paris, February 18, on "Pneumonia in Children."——Dr. Elmer S. Maxwell, Lexington, addressed the Scott County Medical Society, Georgetown, February 25, on nephritis.

MARYLAND

Dean of School of Hygiene and Public Health.—Lowell J. Reed, Ph.D., since 1925 professor of biostatistics at Johns Hopkins University, Baltimore, has been appointed dean of the School of Hygiene and Public Health, succeeding Dr. Allen W. Freeman, who has been identified with the school since 1921 and dean since 1934. Dr. Reed will take the post July 1. A graduate of the University of Maine, Dr. Reed took the degree of doctor of philosophy at the University of Pennsylvania in 1915. He alternated on the faculties of both universities until 1917, when he became director of the bureau of tabulation and statistics of the War Trade Board, Washington, D. C. In 1918 he became associate professor of biostatistics at Johns Hopkins and professor in 1925. Dr. Freeman served as state health commissioner of Ohio before joining the Johns Hopkins School of Hygiene and Public Health in 1921. Prior to that he had been demonstrator in physiology of the Medical College of Virginia, 1906-1907, medical inspector of the Richmond Health Department, 1907-1908; assistant commissioner of health of Virginia, 1908-1915; state director of the Rockefeller Hookworm Commission for Virginia, 1910-1914, and epidemiologist of the U. S. Public Health Service, 1915-1917.

MICHIGAN

Graduate Courses.—The department of postgraduate medicine of the University of Michigan Medical School, in conjunction with the Wayne University College of Medicine and the Michigan State Medical Society, announces the following short courses:

April 5-10, electrocardiographic diagnosis.
April 12-16, diseases of metabolism.
April 26-May 1, ophthalmology and otolaryngology.
April 8-May 27, diseases of the blood and blood-forming organs.
April 1-May 20, surgery.
June 28-August 6, medical roentgenology (advanced).
June 28-August 20, laboratory technic; clinical microscopy.
June 28-August 20, summer session courses.
April 19-21, pediatrics.
April 26-28, proctology.
April 29-May 1, diseases of the genito-urinary tract.
May 3-7, gynecology, obstetrics and gynecologic pathology.
May 10-14, general medicine.

Sessions will be held at University Hospital, Ann Arbor, and Herman Kiefer, Receiving, Henry Ford and Children's hospitals, Detroit. Additional information may be obtained from the director of the department of postgraduate medicine, University of Michigan, Ann Arbor.

Personal.—Dr. John McLean, Hartford, observed his ninety-seventh birthday recently.——Dr. Charles A. Cooper, Trimountain, has been appointed chief of the medical staff of the Quincy Mining Company.——Dr. Alden G. Sheets has been elected mayor of Eaton Rapids, which has a population of 2,822.——Dr. Joseph L. Egle has been appointed medical director of the Gaylord Tuberculosis Sanatorium, Gaylord.——Dr. Clarence E. Umphrey, medical secretary of the Wayne County Medical Society, Detroit, has been selected as president-elect to succeed the late Dr. Frederick B. Burke. He will serve until the annual meeting of the society in May.——Elizabeth C. Crosby, Ph.D., professor of anatomy, University of Michigan Medical School, Ann Arbor, was guest of honor at a dinner, February 2, given by former students whose researches were supervised jointly by the late Dr. Gotthelf Carl Huber and Dr. Crosby. The dinner commemorated the recent publication of the Huber Memorial Volume and was a tribute to Dr. Crosby's help in the preparation of the investigations reported therein, according to the *University Hospital Bulletin*.——Dr. Norbert A. Wilhelm, Boston, was elected superintendent of Butterworth Hospital, Grand Rapids, effective April 1.

MINNESOTA

Graduate Medical Institutes.—The Center for Continuation Study at the University of Minnesota will offer three institutes for practicing physicians during April. Provided the enrolment is sufficient, a course on roentgenologic diagnosis will be held April 12-17, one on irradiation therapy April 19-21, and a third on physical therapy April 22-24.

Dr. Evans Is Guest Lecturer.—Dr. Herbert M. Evans, professor of anatomy and Morris Herzstein professor of biology, University of California Medical School, Berkeley, will address the Minnesota Pathological Society, April 20, on vitamins. He will discuss the same subject the following evening under the Clarence Martin Jackson Lectureship. The lectureship is sponsored by the Phi Beta Pi medical fraternity.

Society News.—Dr. Felix R. Nager, professor of otolaryngology, University of Zurich, discussed "Pathology of Petrositis" before the Minnesota Academy of Ophthalmology and Otolaryngology, February 9, in Minneapolis, and Dr. Cecil S. O'Brien, professor of ophthalmology and head of the department, State University of Iowa College of Medicine, Iowa City, "Tuberculosis of the Anterior Uvea."——Dr. Henry E. Sigerist, Baltimore, discussed "The Social History of Medicine" before the Hennepin County Medical Society, Minneapolis, March 1. Dr. Edwin O. Strassmann, Berlin, Germany, discussed "State Medicine in Europe" before the society, February 3.——Dr. Siegfried J. Thannhauser, Boston, delivered a Mayo Foundation lecture at Rochester, February 8, on "Chemical, Physiologic and Clinical Aspects of Cholesterol."

MISSOURI

Officers of Health Board.—Dr. Edward S. Smith, Kirksville, was elected president of the state board of health, January 30, succeeding Dr. Timothy S. Bourke, Kansas City. Dr. Walter L. Brandon, Poplar Bluff, was chosen vice president, succeeding Dr. William T. Elam, St. Joseph.

Society News.—At a joint meeting of the St. Louis Medical Society and the midwestern and southern sections of the American Congress of Physical Therapy, St. Louis, March 9, Drs. Géza de Takáts, Chicago, discussed "Management of Peripheral Vascular Disease"; Frank H. Krusen, Rochester, Minn., "Physical Therapy in Fibrositis," and Disraeli W. Kobak, Chicago, "Clinical Limitations of Short Wave Diathermy."

Speed Factor in Motor Vehicle Accidents.—A survey was recently made in St. Louis to determine whether speed is a dominant factor in motor vehicle accidents, according to *Illinois Health News*. A maximum speed limit of 30 miles an hour was set and facilities arranged for strict enforcement for thirty days. During the thirty days there were three deaths caused by motor vehicle accidents against fourteen during the thirty days immediately preceding and an average of thirteen per month during 1935. Compared with the thirty days immediately preceding the experimental period, the motor vehicle accidents of all kinds declined by 17.1 per cent, injuries involved in motor car accidents dropped 22.1 per cent, fatalities 77 per cent, hospital cases 20.2 per cent, skull fractures 71.4 per cent, hit and run cases 62 per cent. According to the report, excessive speed is a dominating factor in these accidents and must be controlled to insure safety on the streets.

NEW JERSEY

Personal.—Dr. Berthold S. Pollak, who has completed thirty years as medical director of the Hudson County Tuberculosis Hospital, Secaucus, was honored by a reception at the hospital January 31. Dr. Pollak is to be medical director of a new tuberculosis hospital in the Jersey City Medical Center, now nearing completion.

Handbook of Procedures in Preventive Medicine.—The *Journal of the Medical Society of New Jersey* published as a supplement to its March issue a handbook of procedures in

preventive medicine. Twelve chapters bear the headings: the family doctor, organization, fundamental principles, maternal welfare, child health, crippled children, tuberculosis, cancer control, venereal disease control, mental hygiene, health examination of adults and communicable diseases. It has sixty-eight pages and is bound in heavy paper.

NEW MEXICO

Two Years of Public Health Work.—The New Mexico Bureau of Public Health has published its biennial report covering the year 1935 and the first ten months of 1936. A system of health districts was put into effect July 1, 1935, and in February 1936 social security funds became available. These two events have brought about rapid development. A division of epidemiology was added to the health bureau in 1936, making possible an enlarged program for control of communicable diseases. Typhoid is one of New Mexico's most serious problems because of poor sanitation in much of the state and lack of understanding by a large part of the population of the manner in which the disease is spread. In 1935, 435 cases of typhoid were reported and in the ten months of 1936, 321 cases. More than 12,000 persons were immunized in the fiscal year 1935-1936. Diphtheria has declined in the past four years; 673 cases were reported in 1932, 231 in 1935 and 152 in 1936. Scarlet fever was the most prevalent of all communicable diseases. The bureau has supplied antisyphilitic drugs free, and five free clinics for diagnosis and treatment have been established by local health departments. There were 1,191 cases reported during the period of the report compared with 369 in 1932, an increase attributed to better reporting. Tuberculosis is one of the most important problems. The influx of cases from other states creates a hazard to the native population and many cases of local origin are not seen by a physician. Until 1935 tuberculosis was the principal cause of death and in 1935 it tied for second place with pneumonia; heart disease was first. The general death rate was 13.7 per thousand of population. Under the federal works program a new building for the state laboratory at the University of New Mexico at Albuquerque is under construction. During the period of the report the laboratory has examined 76,219 specimens for diagnosis of such diseases as undulant fever, typhoid and bacillary dysentery in addition to routine work. A special study of dysentery is under way in cooperation with the U. S. Public Health Service. Funds supplied by the Public Health Service, the Children's Bureau and the Commonwealth Fund of New York have promoted the development of the public health nursing program. In 1930 the state had sixteen public health nurses and in 1936 it had fifty-eight, forty-two in county health work, ten employed by school boards and six in supervisory positions.

NEW YORK

Personal.—Dr. William C. Treder, Scotia, has been appointed health officer of Schenectady County. He is a former president and secretary of the Schenectady County Medical Society and has been county coroner since 1921.——Dr. Henry D. Watson, Binghamton, was honored at a testimonial dinner January 12 given by the Broome County Medical Society, which he had served as secretary for twenty-seven years.——Dr. Arthur W. Elting, Albany, has resigned as chairman of the attending staff of Albany Hospital, after ten years' service. Dr. William P. Howard succeeded him.——Dr. George H. Whipple, Rochester, will deliver the fourth annual Alexander Van Rensselaer Lecture at the Drexel Institute of Technology, Philadelphia, April 15. His subject will be "Blood Hemoglobin Production Within the Body as Influenced by Diet and Other Factors Under Experimental Conditions."

New York City

The Sir Robert Jones Lecture.—Dr. Albert H. Freiberg, professor of orthopedic surgery, University of Cincinnati College of Medicine, delivered the seventh Sir Robert Jones Lecture at the Hospital for Joint Diseases, February 18. His subject was "Orthopedic Surgery in the Light of Its Evolution."

Symposium on Neoplasms of the Lung.—The Tuberculosis Sanatorium Conference of Metropolitan New York will hold its tenth clinical session on chronic pulmonary diseases at Cornell University Medical College, April 7. A symposium on primary neoplasms of the lung will be presented by Drs. Wolfgang Grethmann, Coleman B. Rabin, William F. Rienhoff Jr., Baltimore, and Milton Sills Lloyd.

Friday Afternoon Lectures.—Dr. Reginald Fitz, Boston, delivered one of the series of Friday afternoon lectures of the Medical Society of the County of Kings, March 19, on "Treatment of the Diabetic at Home." Other speakers in the series are Drs. Charles F. Geschickter, Baltimore, on "Breast Tumors"; Percy S. Pelouze, Philadelphia, "Blood and Pus in the Urine," and Lee M. Hurd, New York, "Diagnosis and Treatment of Nose and Throat Diseases."

Dr. McGoldrick Honored.—Dr. Thomas A. McGoldrick, chief surgeon of St. Peter's Hospital, was the guest of honor at a dinner arranged by the hospital staff, February 8, at The Towers. Dr. McGoldrick is president of the Medical Society of the County of Kings and chief surgeon of the police department. He was graduated from Long Island College Hospital, now Long Island College of Medicine, in 1896 and was for a number of years a member of the faculty. Among the speakers at the dinner were Drs. Charles Gordon Heyd, President of the American Medical Association; Charles H. Goodrich, president-elect of the Medical Society of the State of New York; John E. Jennings and Thomas M. Brennan. About 500 persons attended the dinner.

Society News.—At a joint meeting of the New York Neurological Society and the section of neurology and psychiatry of the New York Academy of Medicine, March 2, the speakers were Drs. Samuel W. Hamilton, on "The Organic Syndrome in the Psychoses"; Nolan D. C. Lewis, "Constitutional Factors in the Paranoid Psychoses," and William H. Dunn, "An Evaluation of the Biochemical Approach to the Psychoses."——Dr. Elliott P. Joslin, Boston, addressed the Medical Society of the County of Queens, February 23, on "Treatment of Diabetes with Protamine Insulin," and Dr. Beverly C. Smith, on "Treatment of Surgical Complications in Diabetes."——Dr. Abernethy Benson Cannon was the speaker at a stated meeting of the New York Academy of Medicine, March 3, on "Significance of Serologic Tests in Syphilis."

NORTH CAROLINA

New Health Officers.—Dr. Murray P. Whichard, Edenton, has been appointed health officer of Chowan County. Dr. Robert M. Bardin, Rutherfordton, recently health officer of Rutherford County, has been appointed in Richmond County to succeed Dr. Bennie B. Dalton, Rockingham; Dr. Charles H. Peete, Warrenton, in Warren County, and Dr. John S. Anderson, New Bern, in Craven County. Dr. Marion H. Seawell, Jackson, has resigned in Northampton County.

OHIO

New Officers of State Medical Board.—Dr. Lee Humphrey, Malta, was elected president of the State Medical Board of Ohio at a recent meeting; Dr. Floyd S. Meck, Cleveland, was elected vice president, Dr. Chester W. Waggoner, Toledo, treasurer, and Dr. Herbert M. Platter, Columbus, was reelected secretary. Other members of the board are Drs. John H. J. Upham, Columbus, President-Elect of the American Medical Association; John R. Shoemaker, Cuyahoga Falls; Roy C. Hunter, Wapakoneta, and Louis T. Franklin, Chillicothe.

Society News.—Dr. Owen H. Wangensteen, Minneapolis, addressed the Academy of Medicine of Cleveland, March 19, on "Management of Intestinal Obstruction." Members of the Cincinnati Academy of Medicine presented the program of the academy, February 19, as follows: Drs. Marion A. Blankenhorn, "A Clinical Study of Pellagra in Birmingham, Ala."; Lee Foshay, "Tularemia," and Howard D. McIntyre, "Problems of Infectious Polyneuritis."——Dr. George F. Cahill, New York, addressed the Summit County Medical Society, Akron, March 2, on "Hirsutism and Virilism, with Adrenal Studies." Dr. William B. Castle, Boston, addressed the society, February 2, on "The Treatment of Anemia from the Point of View of the General Practitioner."——Dr. Alfred A. Jenkins was elected president of the Cleveland Medical Library Association at its annual meeting January 15, and Dr. Harry D. Piercy, secretary. The library has endowments of more than $300,000 and a collection of 51,000 volumes.

PENNSYLVANIA

Personal.—The board of managers and the staff of Reading Hospital gave a dinner February 10 in honor of Dr. John Lincoln Bower, Birdsboro, who has been a member of the staff for thirteen years. Dr. William S. Bertolet, Reading, was toastmaster.——Dr. John L. Atlee Sr. has been appointed medical director of St. Joseph's Hospital, Lancaster, to succeed Dr. Newton E. Bitzer, who has been made medical director emeritus.——Dr. Joseph Scattergood, West Chester, was honored at a dinner given by the Chester County Medical Society, February 24, in recognition of his twenty-nine years of service as secretary of the society. Dr. John A. Farrell was toastmaster. Dr. Joseph Scattergood Jr. has succeeded his father as secretary.

Society News.—Dr. John Huber Wagner, Pittsburgh, addressed the Cambria County Medical Society, Johnstown, March 11, on "Fractures in General Practice."——Dr. Thomas A. Shallow, Philadelphia, addressed the Luzerne County Medical Society, Wilkes-Barre, in February, on "Diagnosis of Upper Abdominal Surgical Pathology."——Dr. W. Norman Elton, Reading, was elected president and Dr. Abner H. Bauscher, Reading, president-elect of the Northeastern Pennsylvania Chapter of the National Society for the Advancement of Gastro-Enterology at its organization meeting at Easton February 3. Dr. Frederick G. Robinson, Scranton, was made vice president and Dr. Gilbert I. Winston, Reading, secretary. ——Drs. William Devitt and Ross K. Childerhose, Allenwood, addressed the Lycoming County Medical Society, Williamsport, March 12, on "Early Diagnosis and Treatment of Pulmonary Tuberculosis in Its Early Stages."——Dr. Arthur M. Dannenberg, Philadelphia, addressed the Lebanon County Medical Society, Lebanon, March 9, on "Childhood Tuberculosis."

Philadelphia

Executive Secretary Appointed.—Mr. Harry J. Rodgers has been appointed executive secretary of the Philadelphia County Medical Society to succeed the late Franklin M. Crispin. Mr. Rodgers has been a member of the staff of the city department of health for more than twenty years, according to the *Weekly Roster and Medical Digest.*

Graduate Seminars.—A group of seminars on physical diagnosis has been presented recently under the auspices of the Philadelphia County Medical Society, as follows:

February 12, Dr. William D. Stroud, Determination of Cardiovascular Efficiency.
February 19, Dr. James Alexander Clarke Jr., The Nontuberculous Chest.
February 26, Dr. John A. McGlinn, Gynecologic Findings and Interpretations in Routine Examinations.
March 5, Dr. Charles W. Dunn, Obscure Endocrinopathies.

Public School for Crippled Children.—The J. Willis and Elizabeth Martin Orthopedic School was opened February 5 to care for all crippled children in Philadelphia. Special equipment includes a swimming pool, specially designed baths and showers, orthopedic desks and chairs. Classrooms are large, with desks widely spaced and ample room for wheel chairs. An infirmary, shops for handicraft work, a sun room and a gymnasium are other features. Busses will bring the children to the school. The building cost $600,000, part of which was supplied from WPA funds.

Society News.—The section of otolaryngology of the New York Academy of Medicine held a joint meeting with the section on otolaryngology of the College of Physicians of Philadelphia, March 17, with the following speakers: Drs. Horace J. Williams, on "Acute Leukemic Labyrinthine Disease"; Walter Hughson, "Significance of Experimental Otology," and Gabriel Tucker, "Bronchoscopy in the Management of Postoperative Pulmonary Complications."——At a meeting of the Philadelphia Neurological Society, March 19, the speakers included Drs. Eleanor Scott on "The Possible Cerebral Factor in Hypertension" and Robert A. Matthews, "Chronic Encephalitis: Symptomatic Treatment with Benzedrine Sulfate."

Pittsburgh

Personal.—Dr. Waid E. Carson has been appointed professor of ophthalmology in the University of Pittsburgh School of Medicine.

Society News.—At a meeting of the Allegheny County Medical Society, March 16, the speakers were Drs. William W. McFarland, on the work of the general health council; Chauncey L. Palmer, pending health legislation, and George R. Harris, provisions of the compulsory health insurance bill. ——Dr. Alfred Stengel, Philadelphia, delivered the Drs. Charles and Karl Emmerling Memorial Medical Lecture of the Pittsburgh Academy of Medicine, March 23. His subject was "The Influence of Abdominal Diseases on the Heart and Circulation."

SOUTH CAROLINA

State Medical Meeting at Columbia.—The eighty-ninth annual session of the South Carolina Medical Association will be held in Columbia, April 13-15, at the Jefferson Hotel. The guest speakers will be Drs. Morris Fishbein, Chicago, Editor of THE JOURNAL, who will address a public health meeting Wednesday evening, April 14, on "Food Fads and Follies," and Abernethy Benson Cannon, New York, who will speak at a luncheon meeting on "Skin Problems Encountered in General Practice." Dr. Fishbein will also speak at the laying of the cornerstone of a new building of the South Carolina Tuberculosis Sanatorium, State Park, sponsored by the Grand Lodge of Masons of South Carolina in the afternoon of April 14; his subject will be "Weapons Against Tuberculosis." Dr. Cannon will conduct a skin clinic Thursday morning April 15. Among South Carolina physicians on the program will be:

Dr. Douglas Jennings, Bennettsville, Ectopic Pregnancy.
Dr. Charles O. Bates, Greenville, Psychoneurosis Following Injury.
Dr. Walter R. Mead, Florence, Recognition, Differentiation and Management of the Commoner Cardiac Crises.
Dr. Leon Banov, Charleston, The Medical Profession and the Public Health.
Dr. Julian P. Price, Florence, Pernicious Malaria in Children.
Drs. Francis B. Johnson and James E. L. Reveley, Charleston, Meningococcal Meningitis—An Analysis of 100 Cases.

During the meeting a new psychopathic building will be dedicated at the South Carolina State Hospital, with Dr. Walter L. Treadway, head of the division of mental hygiene of the U. S. Public Health Service, Washington, D. C., as the guest speaker. Dr. Robert C. Bruce, Greenville, is president of the association.

SOUTH DAKOTA

Meningitis in Custer.—Newspapers reported March 20 that six deaths had occurred in an epidemic of meningitis at Custer. The outbreak started in a Civilian Conservation Corps camp; four of the victims were members of the corps and two were citizens of Custer.

TENNESSEE

State Medical Meeting at Knoxville.—The one hundred and fourth annual meeting of the Tennessee State Medical Association will be held in Knoxville, April 13-15, under the presidency of Dr. Wilson L. Williamson, Memphis. The guest speakers will be Drs. Charles Gordon Heyd, New York, President of the American Medical Association; Norman L. Higinbotham, New York; Louis A. Buie, Rochester, Minn., and Frank E. Whitacre, Chicago, now conducting graduate courses in obstetrics in the state. Among Tennessee physicians listed on the tentative program are:

Dr. Robert B. Wood, Knoxville, The Commoner Clinical Allergies.
Dr. Philip H. Levinson, Chattanooga, Angina Pectoris and Coronary Occlusion: Diagnosis and Treatment.
Dr. Barney Brooks, Nashville, Results Obtained in About 300 Operations in the Past Ten Years in Vanderbilt Hospital on Patients More Than 70 Years of Age.
Drs. William D. Haggard and James Kirtley Jr., Nashville, Ligation of Saphenofemoral Junction with Retrograde Sclerosing Injections for Varicose Veins.
Drs. Nicholas Gotten and Otis S. Warr, Memphis, Relation of Water Balance to Intracranial Pressure.
Dr. Jere L. Crook, Jackson, Radium—An Indispensable Means of Therapy in Its Field of Service to Humanity.
Dr. William Battle Malone, Memphis, Gas Gangrene—Its Prevention and Treatment.

Meeting with the association will be the Tennessee Academy of Ophthalmology and Otolaryngology, April 12, and the Tennessee Pediatric Society, April 13. Among speakers before the academy will be Drs. Marvin M. Cullom, Nashville, on "Chronic Purulent Otitis Media and Mastoiditis," and Charles K. Lewis, Memphis, "Injection of the Sphenopalatine Ganglion for the Relief of Facial Neuralgia." Guest speakers at the pediatric meeting will be Drs. Alfred A. Walker, Birmingham, Ala., on "Enlargements of the Spleen in Infants and Children"; Laurence R. DeBuys, New Orleans, "The New-Born," and Joseph Yampolsky, Atlanta, Ga., "A Comparative Study of the Use of Acetarsone and Other Drugs in the Treatment of Syphilis in Children."

TEXAS

Changes in State Health Department.—Dr. William Arthur Smith, San Antonio, has been appointed director of mental hygiene in the state department of health, and Dr. Robert B. Wolford, formerly of Wichita Falls, director of the bureau of communicable diseases. Dr. Smith was formerly assistant superintendent of the San Antonio State Hospital, having resigned to enter private practice.

WASHINGTON

Society News.—Dr. Winchell McK. Craig, Rochester, Minn., addressed a special meeting of the Spokane County Medical Society, Spokane, March 29, on "Surgical Treatment of Hypertension." Dr. Eugene B. Potter, Seattle, addressed the society, March 11, on "Surgical Treatment of Peptic Ulcer." ——Dr. Karl A. Menninger, Topeka, Kan., addressed the King County Medical Society, March 15, on "The Psychoneurotic and the General Practitioner."

Fifty Years of Practice.—Dr. Orville R. Allen, Lake Stevens, was honored by the Snohomish County Medical Society with a complimentary dinner February 11 at the Monte Cristo Hotel, Everett, in celebration of his fiftieth year of practice.

Dr. Allen was born in Illinois, where his father was a partner of Abraham Lincoln in a grist mill, according to *Northwest Medicine*. He graduated from Rush Medical College, Chicago, in 1887 and practiced in Missouri and in several towns in Washington before settling in Lake Stevens in 1914. An oil painting of Dr. Allen by Mrs. Allen was presented to the medical society to hang in its library.

WISCONSIN

University News.—Dr. Phillips F. Greene, chief surgeon of Yale-in-China Medical School and Hospital, Changsa, Province of Hunan, China, gave an address at the University of Wisconsin Medical School convocation, March 11, on medical opportunities in the Orient. Dr. Greene is spending this year at Yale University and New Haven Hospital.——Dr. John H. J. Upham, Columbus, Ohio, President-Elect of the American Medical Association, gave an address at Marquette University School of Medicine, Milwaukee, February 20, on "Changing Times in Medicine."

PHILIPPINE ISLANDS

New Dean of Medical School.—Dr. Antonio G. Sison, professor of medicine, College of Medicine, University of the Philippines, Manila, has been appointed dean of the college to succeed Dr. Fernando Calderon, who retired in October 1936. Dr. Sison is 53 years old and graduated from University of Pennsylvania School of Medicine, Philadelphia, in 1908. He is a former chairman of the medical division of the Medical Research Council of the Philippines and has been president of the Manila Medical Society and the Philippine Islands Medical Association.

PUERTO RICO

Course for Tuberculosis Workers.—An institute for tuberculosis workers was conducted at the University of Puerto Rico, March 10-18, under the personal direction of Philip P. Jacobs, director of publications and extension, National Tuberculosis Association, New York. The course was designed for the social workers and nurses under the direction of the department of health, although other persons were admitted. It was adapted to the needs and problems in Puerto Rico.

GENERAL

American Leprosy Foundation.—The board of directors of the Leonard Wood Memorial for the Eradication of Leprosy has approved the use of the name American Leprosy Foundation to identify its activities in this country and abroad. The board felt that the change was necessary since the activities of the organization had taken on an international character and because the name Leonard Wood Memorial means little outside the United States. It emphasizes that while the new name has been approved the corporate name has not been changed.

Opportunity for Physicians in California.—The California State Personnel Board is holding an examination May 1 for the position "physician and clinical pathologist." The examination is open to physicians in all parts of the United States who are graduates of approved medical schools with three years of experience in the licensed practice of medicine with specialization in clinical pathology, bacteriology and serology or some other equivalent combination of education and experience. The applicant must have a license to practice in California or be able to secure one. Age limits are from 26 to 50 years. Applications should be filed with the California State Personnel Board, Sacramento, Calif., before April 24.

Association for Study of Neoplastic Diseases.—The annual meeting of the American Association for the Study of Neoplastic Diseases will be held in Philadelphia at Jeanes Hospital April 8-10. Among those who will participate in the discussions will be:

Dr. George A. Stewart, Baltimore, Cured Cases of Cancer.
Dr. Elwood E. Downs, Woodbury, N. J., Effects of Radiation on the Lungs in the Treatment of Breast Cancer.
Dr. Elbert DeCoursey, Washington, D. C., Eye Tumors.
Dr. Edward B. Krumbhaar, Philadelphia, Lymph Nodes.
Dr. Charles F. Geschickter, Baltimore, Tumors of the Ovary.
Dr. Stanley P. Reimann, Philadelphia, Chemical Factors Concerned in Cell Growth and Development.

Dr. Stewart is president of the association and Dr. Eugene R. Whitmore, Washington, D. C., secretary.

Progress in Use of Standard Nomenclature.—The National Conference on Nomenclature of Disease states in its annual report that nearly 300 hospitals are now using the standard nomenclature sponsored by the conference. The conference conducts a large correspondence with physicians and hospitals concerning the nature of disease, and the nomenclature has become a textbook in diagnosis and only secondarily a list of diseases, the report says. Financial assistance is afforded by the Commonwealth Fund, the Metropolitan Life Insurance Company, the Carnegie Corporation and the fifty-four member hospitals of the conference. Dr. Haven Emerson, New York, is president of the conference, Dr. Henry A. Christian, Boston, vice president, and E. H. Lewinski-Corwin, Ph.D., secretary.

Grants Available from Plotz Foundation.—Applications for grants of funds for research in medicine and surgery from the Ella Sachs Plotz Foundation must be in the hands of the executive committee before May 1. As a rule preference is given to research on a single problem or on closely allied problems, but during the present great need for funds grants will be given in the sciences closely related to medicine without reference to special fields. The maximum size of the grants will usually be less than $500. There are no formal application blanks, but letters asking for aid must state definitely the qualifications of the investigator, an accurate description of the proposed research, the size of the grant requested and the specific use of the money. It is desirable to include letters of recommendation from the directors of the laboratories or clinics in which the work is to be done. Applications should be sent to Dr. Joseph C. Aub, Collis P. Huntington Memorial Hospital, 695 Huntington Avenue, Boston. During the past year thirty grants were made by the foundation, eighteen of which went to scientists outside the United States. In the thirteen years of its existence the foundation has made 282 grants.

Lectures on Growth and Development of the Child.—The concluding lectures in the radio forum on the growth and development of the child, under the auspices of the National Congress of Parents and Teachers, the American Academy of Pediatrics and the National Broadcasting Company, are as follows:

Charles W. Savage, professor emeritus of physical education, Oberlin College, Oberlin, Ohio, April 7, Physical Education for Growing Children.
Dr. Joseph Brennemann, chief of staff, Children's Memorial Hospital, Chicago, April 14, Disease and the Doctor's Side of Growth.
Dr. Martha M. Eliot, assistant chief, Children's Bureau, U. S. Department of Labor, Washington, D. C., April 21, Effects of Family Income on a Child's Growth.
Dr. Richard A. Bolt, director, Cleveland Child Health Association, April 28, Effect of Child Labor on Growth.
Dr. Carroll E. Palmer, medical officer in charge of child hygiene investigations, U. S. Public Health Service, Washington, D. C., May 5, Growth of Children During Wars and Depressions.
Louis I. Dublin, Ph.D., statistician, Metropolitan Life Insurance Company, New York, May 12, Health Hazards in the Period of Growth.
Dr. Henry E. Sigerist, William H. Welch professor of the history of medicine, Johns Hopkins University School of Medicine, Baltimore, May 19, Old and New Thoughts About Growth.

The lectures are on the Blue network of the National Broadcasting Company every Wednesday from 4 to 4:30 p. m., eastern standard time.

Society News.—The Alpha Mu Pi Omega Fraternity will hold a luncheon and biennial meeting at 12 noon at the Hotel Madison, Atlantic City, June 9.——The Western Branch of the American Public Health Association will hold its eighth annual meeting in Phoenix, Ariz., April 13-15.——Dr. Donald B. Armstrong, New York, has been reelected president of the National Health Council and Maurice A. Bigelow, Sc.D., New York, secretary. The American Red Cross and the Maternity Center Association have become active members. ——The Tri-State Hospital Assembly of Illinois, Indiana and Wisconsin will be held May 5-7 at the Hotel Sherman, Chicago. ——Dr. Herman L. Kretschmer, Chicago, was elected president of the Clinical Society of Genito-Urinary Surgeons at its recent annual meeting in Chicago. Dr. John R. Caulk, St. Louis, was chosen vice president, and Dr. Henry G. Bugbee, New York, was reelected secretary. The next annual meeting will be held in Boston.——At the annual meeting of the American Orthopsychiatric Association in New York, February 19-20, Dr. George J. Mohr, Chicago, was elected president and Dr. Norvelle C. La Mar, New York, secretary. The next meeting will be in Chicago, Feb. 24-26, 1938.——The luncheon of the Phi Rho Sigma medical fraternity during the annual session of the American Medical Association in Atlantic City will be at the Hotel Ambassador, Wednesday, June 9.——The Catholic Hospital Association of the United States and Canada will hold its annual meeting at the Stevens Hotel, Chicago, June 14-18.——Clarence C. Little, Sc.D., Bar Harbor, Maine, was reelected president of the American Birth Control League at its annual meeting in New York in January.——Dr. J. Frank Highsmith, Fayetteville, N. C., was chosen president-elect of the Tri-State Medical Association of the Carolinas and Virginia and Dr. Howard R. Masters, Richmond, was elected president at the annual meeting in Norfolk, February 22-23. This is the first time the association has elected a president-elect. Elected as vice presidents were Drs. David C.

Wilson, Charlottesville, for Virginia; David W. Ruffin, Ahoskie, for North Carolina, and Charles N. Wyatt, Greenville, for South Carolina. Dr. James M. Northington, Charlotte, N. C., was made secretary. Next year's meeting will be in Asheville. Guest speakers were Drs. Frank H. Lahey and Elliott P. Joslin, Boston.

Pathologic Specimens in Otolaryngology Available for Loan.—The division of otolaryngology of the Registry of Pathology in Otolaryngology, Army Medical Museum, Washington, D. C., has assembled a loan collection of histopathologic preparations. Twenty-five sets are available. Requests should be sent to the curator of the Army Medical Museum, with a check for $25 as a deposit. On the return of the set after three weeks, the money will be returned, minus the cost of shipment. If a preparation is broken or lost during the loan there will be a charge of $1 per preparation. An album of microphotographs of the preparations and photographs of the gross specimens, together with descriptive material, will be furnished with the loan set. Fifty-one specimens have been assembled during the two years existence of the division of otolaryngology of the registry and it is hoped that the number may be raised to 100 preparations. To this end, specimens should be sent to the museum in the proper containers and solution together with a fairly complete history of the cases from which they are taken. Diagnosis will be made and a section will be sent to any one that sends a gross preparation. It is to be understood that there is no time limit for the return of the preparation because the laboratory of the division is not competing with any other laboratory. The Army Medical Museum, under the direction of the surgeon general of the U. S. Army, has had a registry for a number of years in the branches of ophthalmology, dental surgery, bladder tumors and lymphatic tumors. The division in otolaryngology was established two years ago through the efforts of Dr. Joseph C. Beck, Chicago, who is its director, and under the auspices of the American Academy of Ophthalmology and Oto-Laryngology. Any member of the academy or any otolaryngologist sponsored by a member of the academy can obtain the loan of these sets. Any further information may be obtained from the curator of the museum.

FOREIGN

International Ophthalmological Congress.—The fifteenth International Ophthalmological Congress will be held in Cairo, Egypt, December 8-14. The official subjects to be discussed are "Arterial Hypertension of the Retina" and "Endocrinology and the Eye." The secretary general of the congress is Dr. M. Tewfik, P. O. B. No. 2001, Cairo, Egypt.

St. Thomas's Hospital Begins New Series of Reports.—St. Thomas's Hospital, London, has issued the first volume of a new series of reports which is a departure from its former style. The hospital began to publish reports in 1835, but this effort did not continue beyond 1836. Continuous publication was begun in 1870. With the development of general periodical medical literature, contributions of original articles waned until latterly the report has consisted principally of statistics. The new series will be made up of annual volumes containing original articles in which the work of the hospital will be reflected. The first volume contains nineteen original articles and 199 pages.

International Hospital Meeting.—The International Hospital Association will hold its fifth congress in Paris, July 6-11. The Federation of Hospital Unions of France has been designated by the Ministry of Public Health to cooperate with the association in planning the program and arrangements. The meeting will occur during the International Exposition in Paris, at which special privileges will be granted to the visitors. Persons attending the congress will benefit by reductions in rates on the French and foreign railroads. The chairman of the committee on arrangements is M. Albert Chenevier, No. 3 Avenue Victoria, Paris IV. Dr. Malcolm T. MacEachern, Chicago, is vice president of the association.

CORRECTIONS

The Bryce Hospital.—The average census of patients in the Bryce Hospital, Tuscaloosa, Ala., for the last fiscal year, was 3,475 instead of 475 as reported in the Hospital Number of THE JOURNAL, March 27, page 1061. The number of beds is 3,261.

Metrazol.—It was erroneously stated in "Poisoning With Barbituric Acid Derivatives" (Queries and Minor Notes, THE JOURNAL, March 13, 1937, p. 908) that metrazol is a soluble camphor derivative. Metrazol is a synthetic, organic chemical compound; namely, pentamethylentetrazol.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 6, 1937.

Criticism of the Protective Measures Against Poison Gas

In the House of Commons, Mr. Pritt said that the government proposed to teach people that, first, they should have gas-proof rooms and use them, and that gas masks would be a second line of defense in the event of such rooms being broken up, or if they happened to be out when the danger began. This was a sham. It had been demonstrated that the walls of ordinary buildings admitted air with such facility that on a windy day a volume of air equivalent to that in the room would enter in fifteen minutes, although the method of gas proofing recommended by the government was carried out. A gas that would kill a person in the open air in six minutes would kill a person in "the gas-proof room" in sixty minutes. It had been said that gas masks were satisfactory, but what was being done for the people who could not wear them? A very large number under the age of 5 years could not wear them and many were too old to wear them.

For the government Mr. Geoffrey Lloyd replied that the methods of gas proofing recommended were taught at the Civilian Anti-Gas School, where gas was discharged against wooden structures erected for demonstration purposes. The government was satisfied that the methods would afford a great measure of protection against any concentration or type of gas that might be expected. The gas masks were specially designed to provide less resistance to breathing than those issued to troops and so could be worn by children and old persons. For infants and young children a special device was being designed.

The most important criticism of the government's measures is a pamphlet issued by "The Cambridge Scientists Anti-War Group." They say: "If the gas is strong enough to injure a man fatally in one hour, then he will receive an equal dose in two and one-half to four hours in his 'gas-proof' room. If the gas is much stronger and would kill in five minutes, the survival time in the room would be only half an hour to one hour. These calculations are made on the assumption that the concentration of the gas remained constant, as it would if a persistent gas were sprayed down the street." They also say that in working-class homes a gas-proof room could seldom be provided, and describe experiments to show that gas masks have only a limited value, and they are doubtful about the possibility of protecting young children. This "group" is accurately described by its title. Its members are all scientists and some of them are eminent. Every one in this country is "anti war," but the term here is used by men who, in some cases at any rate, consider war such an evil that they would not take part in it even to resist aggression. Such persons refused to fight in the war and were called "conscientious objectors." They would not be tolerated in any of the other countries of Europe. They evidently think that one way of preventing war is to persuade the public that the precautions which are being taken are of little value. Their conclusions are not accepted by the government, who suggest political motives.

The Radium Treatment of Cancer

The Holt Radium Institute of Manchester gives in its annual report a review of its results in the treatment of cancer. A generation ago it was generally accepted that most patients admitted to a cancer hospital had but a few months to live and that all which could be done was to nurse and relieve them by administering anodynes. Surgery always worked under the difficulty that operations for any but the earliest stages had

to be extensive. Hence its usefulness was often lost because the patients' fear of the knife made them afraid to seek advice early, when a simple operation might have been successful. When they came later for treatment, a mutilating operation was necessary and the chance of permanent cure was remote. The present report shows that the results of the early treatment of cancer by radiotherapy are extraordinarily good and it even claims that if all early cases were treated cancer in many sites would no longer be a dreaded disease.

In 1933, 1,013 cases of cancer were treated at the institute. The disease affected the mouth, skin, breast, uterus and many other sites. Indeed, the whole range of the common cancers was represented, except those of the digestive system. Oct. 31, 1936, of these 1,013 patients 536, or 53 per cent, were alive. Many of the others had died from cancer, but some from accidents and other diseases to which those of the cancer ages are prone. The chances of survival varied much from patient to patient, being greatest in the early cases, while in many of the advanced cases only palliation was possible.

EPITHELIOMA OF THE SKIN

In 1933, ninety-three cases of epithelioma of the skin were treated; 70 per cent of these patients were alive at the end of October 1936. Survival occurred in 80 per cent of the early cases but in only 16 per cent of the late cases. It is surprising that only fifty-six of the cases were early, as the disease could readily be seen by the patient in its earliest stages.

CANCER OF THE UTERUS

Cancer of the uterus is more difficult for the patient to detect in its early form, for its symptoms then closely resemble those of natural functioning. Of 113 cases only seven were very early and forty-six so early as to offer hope of permanent cure. In the remaining sixty-seven the disease had spread widely beyond the uterus into adjacent structures. Some 33 per cent of these 113 patients with uterine cancer in all stages were alive at the end of October 1936, and 48 per cent of the forty-six with cancer in reasonably early stages.

CANCER OF THE BREAST

Only ten of seventy-one patients had simply small lumps in the breast unaffecting other tissues and not spread to the glands. Of the early cases survival occurred in 70 per cent for three years, but only 20 per cent of those in which the glands were affected and not one of the late cases.

REACHING THE PATIENT

The importance of early treatment being so great, the problem is how to reach the patient early. If the patient lived in Manchester, he almost certainly would be sent directly to the institute or by way of one of the large general hospitals, but in the populous surrounding district there was greater difficulty. The institute therefore established radium clinics in the local hospitals. The patients received radium treatment at the clinics, which were not isolated radium centers but closely bound to the institute, by which treatment was frequently carried out and from which advice in times of difficulty was immediately available. Thus a coordinated system has been established which serves a population of more than two and one-half million.

Physical Training

There is a strong movement in this country for better physical training of the people. The government has issued a pamphlet containing proposals for the development and extension of the present facilities. They include the establishment of advisory councils, committees for the making of grants, subject to the approval of the responsible minister, the founding of a national college for physical training, and grants to the National Playing Fields Association and to the Central Council of Recreative Physical Training. It is desired to create in the public mind a realization of the value of physical fitness for its own sake and to provide facilities sufficiently attractive to make an effective appeal to the people. The government has decided that any scheme must embrace the whole field of physical culture and therefore include arrangements for increasing the supply not only of gymnasiums but also of playing fields, swimming baths and other means of physical recreation. It is also recognized that many may desire opportunities for physical exercise and recreation not solely as such but as part of a fuller club or community life. The scheme will extend to combined provision of this character.

PARIS

(From Our Regular Correspondent)

March 5, 1937.

Public Health Budget Discussion in Parliament

In the discussion Dec. 14, 1936, of the budget of the ministry of public health, the first speaker said that the decrease in population was a vital question for France. It was the result not only of an apparent diminished natality but also of an increase in the mortality rate as compared to other European countries. In Germany there were 147 births and 112 deaths, in England 144 births and 120 deaths, per 10,000 inhabitants, as compared to 163 births and 158 deaths in France. Every effort must be made here to improve sanitary conditions and to prolong life. The second speaker, who represented the newly created government department of physical education, said that, by encouraging sports, much could be accomplished toward decreasing the mortality rate. It appears as though a middle of the road policy on the part of the government between obligatory physical education and free initiative would be preferable. The state should place all its resources at the disposal of private interests in the development of sports in France. The budget of the public health department has been greatly increased this year to permit it to encourage preventive medicine with the aid of the organized medical profession as represented by the syndicates and also to aid existing public and private agencies in their fight against disease. The problem of mental hygiene is a most important one, France being in first place as compared to other countries with respect to the number of insane, there having been an increase of 30 per cent during the past ten years. The minister of public health said that improved economic conditions would do more to increase the annual number of births than the present system of awarding money for large families. A decrease in the mortality rate would soon be followed by an annual increase in the number of inhabitants. This was shown by a glance at the English statistics, which reveal an annual increase of 130,000 inhabitants, as compared to 20,000 in France, although the number of births is equal in the two countries. Hence the fight against alcoholism, tuberculosis, syphilis, insanity and even rheumatism must be intensified.

One of the deputies, Mr. Cousin, objected to a recent (Sept. 26, 1936) decision of the ministry of public health that members of the staffs of public hospitals should not be allowed to accept fees directly from pay patients. He also objected to the order that a pay patient in public hospitals should be allowed to select his own physician, i. e., not be obliged to take a member of the staff as a medical attendant.

In the upper house the statement was made by one of the speakers that it had been hoped that the application of the social insurance law would result in a smaller number of free patients. This had not been found to be the case. After the foregoing discussion, the budget of the department of public health, amounting for 1937 to 1,700,000,000 francs (about $85,000,000), was voted by both houses of parliament. This is an increase of 600 million francs over the 1936 budget.

Annual Meeting of French Federation of Medical Syndicates

In every department in France, the public relations of the profession are looked after by an association of physicians termed a syndicate. All the latter, eighty-six for France as a whole, are united in a central body, the Confédération des syndicats médicaux français, which has its headquarters in a recently purchased building in Paris. The annual meeting of this central organization was held Dec. 18-20, 1936, and presented a special interest because of the presence, as one of the speakers at the banquet, of Mr. Henri Sellier, minister of public health.

The most important subject for discussion at the annual meeting was the organization of preventive medicine. Should it be under the exclusive control of the state with medical officials, or under joint control of the state and the syndicates representing the organized profession or, finally, should the physicians act as individuals under the state? The minister of public health had at first planned to follow the first of these, but after the federation had pointed out that the second idea, i. e., joint action of organized medicine and of the state, was feasible, the minister had agreed to look into such a plan, which might be given a preliminary trial in four or five departments. No efforts to install measures of preventive medicine can be considered efficacious without paying more attention than is at present the case to the questions of alcoholism and inadequate housing conditions. The technical organization ought to be in the hands of the syndicates, or organized profession, according to the secretary's report at this annual meeting.

It is necessary to consider one of the following types of health centers:

1. A complete unit with both administrative and technical divisions in a single or adjacent buildings. In the technical portion would be placed examining rooms, laboratories and radiographic equipment.

2. An administrative unit only, the vaccinations and clinical examination being made at the physician's office.

3. A mixed unit or center including, in addition to administrative offices, some facilities for execution of the state's plan of physical education and encouragement of sports as well as rooms for special medical examinations.

The secretary, Dr. Cibrie, was of the opinion that the first of these, i. e., a complete unit, could be employed only in large centers such as Paris or Lyons and hence the second or third units would probably have to be adopted for the majority of the departments.

In the discussion that followed this report, the point was made that periodic health examinations could be better carried out in physicians' offices. Another speaker declared that if the record of every examination must be subjected to the scrutiny of public health officials it would be impossible to guard professional secrecy in many cases. A representative of the radiologic syndicate believed that many patients would go to the health centers and that thus the already rapidly diminishing practice of radiologists would suffer.

Although the opinion of the majority of those who took part in the discussion was favorable to the cooperation of the medical profession and the public health authorities in organizing preventive medicine, preference was given for some plan by which such prophylaxis could be carried out in the offices of the members of the medical syndicates.

In the resolutions voted unanimously, after the reading of the secretary's report, the necessity of a collective contract between the syndicates and the state was emphasized. Such a contract should include the establishment of centers, preferably of the purely administrative type just referred to, the examinations to be made in the offices of the practitioner or specialist.

The next important question was that of hospital care. In France no "mixed" hospitals have existed until recently. Only one attempt to combine the treatment of free and pay patients under one roof, so to speak, has been made, which will be referred to later. Those unable to pay for hospital care are sent to public hospitals, corresponding to city or county institutions in the United States. These are under the supervision here of the authorities of the respective departments or cities, the expenses of maintenance being paid out of the general taxes. The medical staffs of such hospitals are appointed after a severe competitive examination and hold their positions until they have reached the age of 62 years. In the case of professors, in the medical schools, this age limit is extended to 70 years, unless certain bills now before parliament become law. These "public hospitals" also receive those who are insured under the social insurance law, the expenses of hospital care being paid at an agreed (contract) rate of about $2 a day by the insurance authorities. The medical staff, up to the present time, has not been allowed to receive any compensation for such "insured" patients.

In addition to the public hospitals treating those unable to pay and the social insurance patients, the only other institutions are those which receive only pay patients. Among these private hospitals (maisons de santé) a certain number have made a contract with the social insurance organizations, according to which the insured are cared for at the same rate the insured would have to pay in the public hospitals. It is evident that this lack of mixed or open hospitals in communities not large enough to support a strictly private institution has been keenly felt. If such a private hospital exists in any community, it ought not to have as a competitor the public hospital which receives pay patients.

The sentiment of the meeting was expressed in a motion to the effect that the establishment of wards and rooms for pay patients in public hospitals is permissible only after approval by the authorities and local medical syndicates where existing facilities for private hospital care are inadequate.

A third question discussed at this year's federation meeting was whether medical supervisors employed by the social or private insurance organizations and by railroad companies should be allowed to practice. A motion was passed asking that such a law be enacted, exception being made in the case of physicians who are called on to make examinations as court experts.

Results of Treatment of Dementia Paralytica

France, exclusive of its colonies, is divided for administrative purposes into eighty-six departments. The official representative of the central government (situated in Paris) in each department is the prefect. In the energetic antivenereal campaign which the present minister of public health is carrying on, every effort is being made to check, so far as possible, the source of contagion in the form of supervision of prostitutes by the public health officials instead of the police, as is at present the case. A bill will be introduced shortly in parliament to make such a change throughout France. In its circular of Dec. 10, 1936, the ministry of public health addressed to the prefects of all departments a request that they have a questionnaire filled out by superintendents of insane asylums and local antivenereal workers to ascertain whether the use of modern therapeutic measures such as arsenical and bismuth preparations, and of malaria therapy and the perfection of serologic diagnosis, has had any influence on the frequency of dementia paralytica in the respective departments. Information is also desired as to whether the clinical picture has been changed and how often the terminal stages of the disease are observed. The necessity for all those taking part in the antivenereal campaign to trace the number of those (wife and children) who have been infected by a syphilitic husband or father is also to be ascertained. Early recognition of such cases can now be more easily carried out since the antivenereal forces have been better organized by the ministry of public health.

BERLIN

(From Our Regular Correspondent)

March 1, 1937.

Extension of Insurance Against Occupational Diseases

National legislation with regard to occupational disease insurance has recently been substantially reinforced. Sufferers from the most common and dangerous occupational malady, pneumoconiosis, have heretofore received compensation only if the disease was acquired while the insured was employed in one of a certain specified list of occupations. Now disability allowance is granted all pneumoconiosis patients who have become ill while engaged in any insurable occupation. In the sphere of occupational skin diseases the insurance laws have likewise been considerably extended. Here too previous restrictions have been removed and a group of occupational diseases not heretofore covered by industrial insurance is now included within its framework.

It is interesting to note in this connection just which disorders are classed as occupational. A disease is recognized as occupational only if it was contracted by the insured in the course of actual industrial employment. Listed as occupational diseases are diseases originating from contact with lead, phosphorus, mercury, arsenic, manganese and their compounds, benzene and its homologues, nitrobenzene compounds and amino compounds of benzene or its homologues and their derivatives, halogen-hydrocarbons of the aliphatic series, carbon disulfide and hydrosulfuric acid. Excepted from the list are skin diseases that can be termed occupational only so far as they are manifestations of one of the general pathologic conditions caused by absorption of the noxious substances into the organism or if they are included in the following categories of skin diseases: skin diseases from contact with carbon monoxide, roentgen rays and radioactive substances; skin cancer or skin lesions that tend to become cancerous resulting from contact with soot, paraffin, tar, anthracene, pitch and similar substances; affliction with cancer or other neoplasms as well as changes in the mucosa of the urinary tract by aromatic amine; severe or repeatedly relapsing cases of skin disease that compel the worker to change his occupation or to give up gainful employment; disturbances of the musculature, bones and joints caused by working with compressed air tools; severe silicosis as well as silicosis in connection with pulmonary tuberculosis if the entire illness is severe and the pneumoconiotic alterations have caused the tuberculosis to assume an active progressive course, and, lastly, severe asbestosis. Accident insurance is made to cover all the foregoing diseases if the insured is gainfully employed in any recognized industry. The only other occupational diseases recognized as such are those acquired in especially designated industries: pulmonary cancer from the manufacture of chromates, for example, disturbances of the lower respiratory passages and the lungs from inhalation of ground basic slag in the mills or from the mixing, storage and transportation of such slag, malignant lymphosarcoma of the lungs present among workers in the ore mines of Schneeberg, Saxony; deafness or disturbance of the hearing bordering on deafness produced by noise in the metallurgic industries, gray cataract acquired in glass factories, ironworks and smelters; verminosis of mine workers, tropical diseases, typhus and scurvy acquired by persons engaged in maritime and aerial navigation or in business abroad; finally, infections contracted in hospitals and other institutions for the care of the sick as well as in the conduct of welfare service and health service and in diagnostic and experimental laboratories. If there exists for an insured worker the danger that continuance in his employment will mean the beginning, the recurrence or the exacerbation of an occupational disease, he will then be compelled to give up this occupation and will receive a certain compensation for the loss of his earnings. With regard to examination by the industrial physician in charge, exact standards are prescribed in order to assure quick procedure. If a doctor establishes that an insured worker is suffering from a definite occupational disease or if the worker exhibits symptoms that would justify the suspicion of such a disease, an official report must be submitted at once. A physician may be punished for failing to report the result of his observations promptly.

Cancer and Race

Prof. Walther Fischer, pathologic anatomist of the University of Rostock, has reported the results of his own investigation of cancer and race before the medical society there. The approach to this problem is still difficult, as the mortality statistics in various countries are not worked up according to any uniform system. Moreover, Fischer adds, despite the fact that they emanate from official sources, the data are often wholly unreliable. The obduction material of the pathologic institute is accurate enough to be sure, but since the subjects all belong to a special group, namely, hospital patients, such statistics can scarcely represent a fair cross-section of the population. For a comparative study of the question, which embraces tropical countries, variations in the age of a given population must also be taken into account. Due consideration of all these criteria lead one to conclude that the data at present extant form no sound basis for any comparative evaluation. Within these limitations, then, one may hazard the following tentative conclusions:

The various European races present no manifest difference with regard to carcinoma. The Jewish population within the larger cities of Europe shows the same incidence of cancer and only occasionally differences with regard to the incidence of the localization. In the United States, according to Fischer's statistics, the incidence of cancer is the same among white women and Negresses, whereas the disease is 40 per cent less frequent among male Negroes than among white men. Among the Japanese and apparently among the Chinese as well, cancer is about as prevalent as among Europeans. Manifest differences in the most common seats of the cancer exist, however, among the yellow races, the Malays and the Negroes of South Africa. In the yellow race, primary carcinoma of the liver (with cirrhosis) is most frequently encountered. Among the Malays, cancer of the stomach is extremely rare. Sarcomas are much more common among members of the colored races than among white persons. Fischer believes that the differences observed in the incidence and location of cancer are to be attributed to environmental influences and not to hereditary factors.

AUSTRALIA

(From Our Regular Correspondent)

Feb. 10, 1937.

Imports of Dangerous Drugs

According to official figures the Australian consumption of cocaine is higher per head than that of any other English-speaking country. Australia's consumption of cocaine is now shown at 12.4 Kg. per million of population, compared with 5.29 in Britain, 4.89 in Canada, 6.82 in the United States and 7.12 in New Zealand. An increasing use of cocaine by dentists is shown. The consumption of morphine and heroin per million inhabitants is also high. The figures are given in the accompanying table. In Australia, heroin can be imported only through a government department, and the drug is then dis-

Consumption of Morphine and Heroin per Million of Population

	Morphine	Heroin
Australia	13.9	3.31
Britain	13.85	1.18
Canada	11.84	2.13
United States	18.54	Negligible
New Zealand	11.60	1.99

tributed to licensed importers. Control of the importation of all harmful drugs is vested in the commonwealth government, which issues licenses to approved importers; but the importers must secure a permit for each individual shipment of such drugs, with the exception of heroin. Further investigations are being made with a view of endeavoring to trace the reason for the wide variation in these figures.

The Moppett Test for Cancer

Working under the control of the Cancer Research Committee of the University of Sydney, Dr. Warnford Moppett has devised a blood test for the presence of cancer, details of which are given in the *Journal* of the Cancer Research Committee of the University of Sydney for May 1936. The originator claims that his test is 80 per cent correct for positive cases. D. A. Welsh, professor of pathology in the University of Sydney, considers that the test has a scientific significance, and he quotes the results of an independent series of positive tests, which were 92 per cent correct. The tests were made on patients having cancers in many different anatomic sites, many of the cancers being in an early stage and quite small. The test may be summarized thus: The blood to be tested and blood from a healthy control are placed in opposite ends of a special diffusion vessel, which is filled with physiologic solution of sodium chloride after the bloods have clotted. A fragment of mouse tumor (sarcoma) is placed on a glass plate, which is then inverted over the diffusion vessel so that the tumor fragment comes midway between the two blood clots. An initial reading (drawing) is taken of the periphery of the mouse tumor fragment. The diffusion vessel is then incubated at 37 C., and readings are taken at one hour and at twenty-four hours.

In a negative reaction there is a more or less symmetrical "outwandering" of cells from the sarcoma fragment. In a positive test for cancer there is a definite "sweeping" movement of the mouse sarcoma cells away from the cancerous patient's blood. Dr. Moppett has found that a minor degree of repulsion of the cells may be seen when the test blood is taken in some inflammatory conditions; but this was not read as a positive reaction for cancer.

Dr. Moppett has suggested some improvements on his original technic and has given the results of twenty-three tests, made on unknown bloods, in addition to the thirty tests published in his earlier paper. Of these twenty-three tests, eight gave a positive reaction for cancer; and of these eight positives five were correct and three were incorrect according to the biopsies. Admittedly that is a poor result, which shows that, even in the experienced hands of Dr. Moppett himself, the difficult technic is far from being reliable as yet. Nevertheless, both in its successes and in its failures, Dr. Moppett's test for cancer has raised questions of great scientific interest and promising practical value.

Dr. E. F. Thomson was commissioned by the Cancer Research Committee of the University of Sydney to make an independent investigation of the Moppett test for cancer. After preliminary tests made in conjunction with Dr. Moppett, Dr. Thomson undertook 100 additional tests, for the conduct and interpretation of which he was personally responsible. These experiments were carried out with great care and attention to detail; for example, three diffusion vessels were prepared for each test to eliminate accidental error. The results were unexpectedly good. Positive reactions for cancer were given by thirty-six test bloods, and thirty-three of these were taken from patients clinically cancerous, while only three came from patients clinically noncancerous. In twenty-five patients the clinical diagnosis was confirmed by biopsy; in seven patients a biopsy was omitted but the clinical diagnosis was regarded as obvious. It is important to note that these thirty-three correct positive tests for cancer were given by patients in comparatively early stages of cancer, before anemia or wasting had become apparent. The three incorrect positive tests for cancer are discussed at length, and there is evidence that all three patients had probably developed cancer at some time. As this type of success and of failure is the critical test in serologic diagnosis, these results are encouraging.

The available evidence warrants further critical examination of the test, including the question whether the mouse sarcoma (tumor S37 of the Imperial Cancer Research Fund) is the best indicator.

BELGIUM

(From Our Regular Correspondent)

Feb. 12, 1937.

International Congress on the Campaign Against Cancer

The second International Congress on the Scientific and Social Campaign Against Cancer, which represented a real landmark in the fight against cancer, was held at Brussels. The king honored the opening ceremonies by his presence, thus once more attesting his personal interest in the progress of medical science. More than 500 physicians representing forty-three countries met in the great hall of the Palais des académies. After the roll call of delegates present had been broadcast in six different languages, Dr. Lerat spoke from the chair. In a speech filled with lofty sentiments he pointed out that scientists the world over are bound together in a common determination to combat cancer. The search for the basic causes of cancer is the central problem about which all other problems gravitate. The chairman ended his address with the following peroration: "Since cancer is to be combated by scientific means, I for one wish that Science, the daughter of Peace, would no longer be compelled to serve the purposes of that other destructive force and slayer of men. May peace on earth to men of good will shine forth like a rainbow's arc signalizing the end of international tempests and assure to the scientist that tranquillity so requisite for the creative endeavor and the discovery of truth."

The second speaker was Emile Vandervelde, minister of public health, who described Belgium's rôle in the anticancer campaign. Cancer research centers and clinics, all provided with the most modern equipment, have been established by the four Belgian universities. The practicing physician and the visiting nurse have delicate and frequently ungrateful but indispensable services to perform in connection with the organized campaign. There is great need for a campaign of public education to counteract the erroneous popular ideas with regard to the mysterious nature of cancer. The physician too should be taught to renounce his personal interests in order to collaborate in this common cause. In a peroration in keeping with his great forensic talent, Vandervelde said: "We are witnessing, alas, a worldwide speeding up of the armaments race, a situation charged with incredible menace. But this congress loudly proclaims the fact that, fostered by mutual example, there is developing a race in the scientific armament that points toward peace as surely as that other race points toward war. In the words of Duhamel, there is an international language, the language of suffering; and one may hope that the day is at hand wherein the prophecy of Pasteur shall be verified: science and peace shall one day triumph over ignorance and war."

Every aspect of our present knowledge of cancer was touched on in the course of the various sessions. Only the more noteworthy discussions are here summarized.

CHEMICAL COMPOUNDS AS CANCERIGENIC AGENTS

E. L. Kennaway, J. W. Cook, G. A. D. Haslewood, C. L. Hewett, I. Hieger and W. V. Mayneord of London classified

and studied the various groups of cancerigenic chemical compounds in their mutual resemblances and their biologic effect. The most effective cancerigenic compounds known at present belong to the cholanthrene group; these possess a peculiar interest because of their resemblance to biliary acids. The cancerigenic properties of 3:4 benzopyrine, a constituent of tar, have been the object of exhaustive investigation, and the great principles of molecular structure necessary for the activity in the hydrocarbon series and heterocyclic compounds similar to 1:2 benzanthracene have been described. Interesting discoveries from the study of hydrosoluble cancerigenic agents have also been reported; for example, an agent akin to 1:2 benzanthracene and another which is a quinoline styrol of altogether different composition. A weak cancerigenic action has also been observed in certain hydrocarbons that bear no similarity to benzanthracene. Recent work of Japanese scientists has shown that certain pathologic results (cholangioma, adenoma of the liver, hepatoma, and cancer of the bladder) can be provoked by experimental ingestion of relatively simple nitric compounds. Little genuine progress has been realized from the study of the mechanism of the production of cancer by chemical compounds, but it is possible to enumerate a whole series of genetic and other factors that are relevant. Many methods of administration of cancerigenic compounds have been used and many control experiments attempted. Tumors have been produced by application of only 0.42 Gm. of 1:5:6 dibenzanthracene, and manifestations have been observed immediately after the application of certain cancerigenic compounds. The production of cancer by five compounds in a group of tissues and specimens was tabulated and the rôle of estrogen was discussed at length. The effects of cancerigenic compounds on the different systems were described. The speakers also considered such problems as pulmonary tumors encountered in cancer research and the transmission of tumors that are produced chemically by free cellular substances and culture from tissues.

THE INTERRELATION OF CANCER AND HEREDITY

Heredity plays an important part in the origin of cancer. Clara J. Lynch of New York attempted to establish the extent of hereditary influence, the manner in which it acts and the exact nature of the influence. Experimental studies of spontaneous pulmonary tumors and tumors secondary to mammary cancer reveal extrinsic and intrinsic factors which bear on the reciprocal influence of heredity and environment. The results of investigations of the interrelation of heredity and the etiology of tumors due to dibenzanthracene may be summarized as follows: 1. The manifestation of spontaneous tumors in a descendance indicates a susceptibility of that descendance to a certain type of tumor. 2. There is no direct relationship between two types of experimentally produced tumors. 3. If no indication of a peculiar susceptibility to a certain type of tumor is presented in a descendance, it is impossible to predict the easy production of this type of tumor. Certain observations allow a closer analysis of susceptibilities. In cases of breast tumors the degree of epithelial reaction to estrogen has its importance. In manifestations of sarcoma produced by larvae of the cysticerci it has been established that heredity effects only longevity and the degree of receptivity to the cysticerci. A study of artificially produced tumors discloses that if the systemic influence has its general importance there must also be local factors to explain the differing reaction of two tissues to an identical stimulus. Certain characteristics of artificially produced tumors serve to support the theory of somatic mutation as the initial biologic factor in cancer. A hereditary maternal influence has been evidenced in mammary tumors, leukemia and longevity. Advances in the study of the heritability of cancer in man are slow, probably owing in part to the confusion created by environmental influences. In some cases heritability of a susceptibility to a disease that predisposes to cancer has been recognized. It would seem that heredity and environment do not exert the same influence on all types of cancer. In certain types the hereditary influence is clearly apparent, in others it is modified by intrinsic factors. Better understanding of the rôle of heredity in the origin of cancer will depend on the separation of the extrinsic factors from the intrinsic and the determination of their quantitative interrelation.

REVIEW OF RECENT EXPERIMENTATION ON THE SEROLOGIC AND SEROCYTOLOGIC DIAGNOSTIC METHODS IN CANCER

Piero Rondoni of Milan passed in review the principal methods of serocytodiagnosis: first, all those which have as their base the technic of classic immunization and which presuppose the presence in the tumors of antigens serologically differentiable from antigens specific for the zoological species, for the group or for the organ. The presence of these substances cannot be demonstrated in all tumors, but after serologic analysis and certain observations one sometimes recognizes specific haptens of a lipoid nature and certain special conditions of liaison or of distribution of lipoids within the tumors. Nevertheless, it has not been demonstrated that there exist antibodies which adhere to the tumorous antigens within the organism of the subject; and the technics of fixation of complement, precipitin reaction, and so on, have been of no real value on practical application. The author then passed in review various enzymatic reactions, those which seek the protective ferments (Abderhalden reaction), those which have for their objective the establishment of digestive activity opposite the biologically heterologous protein substance (Fuchs) and the cytolytic reaction (Freund and Kaminer) with its assumed perfection and adaptability to different cases. The fundamental phenomenon of cytolysis (on cancerous and embryonal cells) in the presence of numerous homologous and heterologous serums and its diminution in the serum in cancer and in other diseases, as well as in the serum of pregnant women, is certain, but its significance is dubious. At the same time there are numerous reactions based on the colloidal lability of the serum, which also lack specificity. These reactions signify readily detected modifications in the interrelation existing among certain fractions of seroprotein (relative increase of globulins). They must be studied in the light of our modern knowledge of the chemistry of plasmatic proteins. One begins, however, to glimpse the possibility of recognizing the qualitatively different types of the colloidal lability of serums under different physiologic and pathologic circumstances. One is not certain, from the standpoint of clinically utilizable results, with regard to reactions which aim at an establishment of lipoid metabolism any more than with regard to other reactions based on diverse principles. All the data seem to indicate that a tumor at its beginning is a local disorder; humoral alterations are generally secondary, all of which renders it highly improbable that at present an early serologic diagnostic method has been discovered.

ADVANCES IN THE SURGICAL TREATMENT OF CANCER

Henri Hartmann of Paris began with a discussion of electrosurgery (namely, the use of the electric bistoury and electrocoagulation), which has assumed a formidable place in the therapeutic armamentarium against various types of cancer. For certain cancers it is even substituted for radium therapy. Pulmonary cancer was next considered. This disease used to be permitted to run its course untreated but nowadays it is the subject of numerous research activities. As for other types of cancer the author merely pointed out the modifications recently made in the technic of their ablation and in those therapeutic procedures, employed in certain cases, which represent combinations of surgery with other methods. Combined treatment

may begin with a bloody operation and end with radium irradiation or electrocoagulation; in other words, there is some combination of surgery with radiotherapy or with electrocoagulation.

THE PROGRESS OF ROENTGEN THERAPY

F. C. Wood of New York explained first of all why the study of x-ray dosage advances at so slow a pace. Of all biologic material used in roentgenologic research, none is more serviceable than the eggs of Drosophila. The important consideration for workers in cancer research is to gage the dose that will prove lethal for the cancer cells, keeping always in mind the duration of application and the amount of radiation employed. Lethal doses for tumors in animals are known, but tumors in man vary greatly and usually offer such vague indications of their radiosensitivity that estimates of the dosage can be only approximations. The lethal dose will be around 5,000 to 7,000 roentgens and the most rational application is the same for radium and for roentgen rays. Certain tumors remain uninfluenced by these dosages; such tumors are classed as incurable. Wood next discussed the reintroduction into roentgen therapy of treatments with currents of low voltage and the recent trend toward the use of extremely high voltage. Too inexact nomenclature should be replaced by precise indications of the voltage: roentgen rays 10 kilovolts, roentgen rays 200 kilovolts or roentgen rays 1,000 kilovolts. If the voltage is thus specified and if the filtration and the time are known, one will possess a satisfactory idea of the dosage employed. On both theoretical and practical grounds, Wood approves the adoption of the principle of Regaud-Coutard and recommends that those who apply Coutard's method follow meticulously the inventor's technic. He next mentioned the special irradiations with electrons and neutrons; according to his opinion this procedure is still in the experimental stage. The use of substances that have been artificially rendered radioactive by a bombardment of deuterons offers little promise. The use of such substances as radium substitutes in external therapy appears questionable, as the cost of the artificial product would probably exceed even that of radium. The biologic aspects of this therapeutic problem are still in a rudimentary stage. Clinical investigations have brought about a certain advance in our knowledge of radiosensitivity, but with regard to the way in which the emanations act on the cell, little more is known than was known ten years ago.

Marriages

JESSE BURNS EARLE, Siler City, N. C., to Miss Helen Christine Pleasants of Greensboro, in New York, Dec. 29, 1936.

MERLE DUMONT BONNER, Jamestown, N. C., to Miss Blanche Baker Hanff of High Point, January 30.

JOHN C. F. MENDILLO, New Haven, Conn., to Miss Emily Wetmore of Easton, Pa., Oct. 10, 1936.

ROBERT HOWARD BARKER, Boston, to Miss Athalia Stearns Ogden of Elizabeth, N. J., February 6.

THOMAS LOWRY ROGERS to Miss Helen Marie Egenberger, both of Long Beach, Calif., February 3.

MILTON R. SCHWARTZ, Akron, Ohio, to Miss Helen Elizabeth Franks of Minden, La., Sept. 20, 1936.

HAROLD M. PATTERSON, Hana, Hawaii, to Marie Louise Weber of Honolulu, Aug. 7, 1936.

JOHN M. WURSTER, Buhl, Idaho, to Miss Evelyn Lillge of Appleton, Wis., Sept. 26, 1936.

CRAIG D. ELLYSON, Waterloo, Iowa, to Miss Johanne Wilkens of Chicago, Oct. 26, 1936.

HENRY B. KIRKLAND to Miss Frederica Victoria Peck, both of New York, February 8.

ROBERT A. NEWBURGER to Miss Rhoda Rosenson, both of New York, March 11.

Deaths

Duncan Eve Sr., Nashville, Tenn.; Bellevue Hospital Medical College, New York, 1874; secretary of the Section on Surgery and Anatomy of the American Medical Association, 1880-1882, and chairman, 1884-1885, first Vice President in 1887, and member of the House of Delegates in 1903 and 1904; professor of clinical surgery, Vanderbilt University School of Medicine since 1925, professor of surgery and clinical surgery, 1905-1925; dean of the Medical Department of the University of Tennessee, 1897-1905; professor of microscopy, Tennessee College of Pharmacy, in 1875; member and past president of the Tennessee State Medical Association, the American Surgical Association and the Southern Surgical Association; past president of the Nashville Academy of Medicine, Southern Medical Association and the Mississippi Valley Medical Association; fellow of the American College of Surgeons; surgeon to St. Thomas Hospital and consulting surgeon to the Nashville City Hospital; senior chief surgeon to the Nashville, Chattanooga and St. Louis Railway Company until 1930 and district surgeon to the Louisville and Nashville Railroad until 1930; aged 84; died, February 15, of senility.

Richard Hoope Cunningham, New York; Medical College of Virginia, Richmond, 1886; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1888; lecturer on nervous and mental diseases, Medical College of Virginia, Richmond, 1893-1894; demonstrator in physiology, Columbia University, 1895-1898, and instructor in electrophysiology, 1902-1906; clinical assistant in neurology at the Vanderbilt Clinic, 1895-1902, and since 1906 neurologist and chief of clinic, department of neurology; member of the American Physiological Society, American Neurological Association and the American Society of Experimental Biology; a pioneer in the development of the stereoscopic fluoroscope; aged 71; died, February 24, in the Presbyterian Hospital.

A. Haines Lippincott ✠ Camden, N. J.; Jefferson Medical College of Philadelphia, 1892; in 1935 member of the House of Delegates of the American Medical Association; past president of the Camden City Medical Society, Camden County Medical Society, Medical Society of New Jersey and Philadelphia Urological Society; formerly police and fire surgeon of Camden and coroner in Camden County; fellow of the American College of Surgeons; member of the American Urological Association; chief urologist of the Cooper Hospital, Camden; a trustee of the Jeanes Hospital, Philadelphia; on the consulting staff of the Newcombe Hospital, Vineland, and the Camden County General Hospital, Grenloch; aged 69; died, March 10, of coronary thrombosis.

Thomas Orville Menees ✠ Grand Rapids, Mich.; Vanderbilt University School of Medicine, Nashville, Tenn., 1912; member of the American Roentgen Ray Society, Radiological Society of North America, American College of Radiology and the American Radium Society; in 1925 was awarded a bronze medal by the American Medical Association for study on oral cholecystography and in 1934 received honorable mention for an exhibit, with Dr. J. D. Miller, for study of the endometrium by means of thorium hydroxide sol; received an award from the American Roentgen Ray Society on amniography; served during the World War; roentgenologist to the Blodgett Memorial Hospital; aged 46; died suddenly, February 14, of coronary occlusion.

Francis Alexander Caron Scrimger, Montreal, Que., Canada; McGill University Faculty of Medicine, Montreal, 1905; associate professor of surgery at his alma mater; served with the Canadian Army Medical Corps during the World War, attaining the rank of lieutenant colonel; was awarded the Victoria Cross for bravery at the Battle of St. Julien in April 1915; surgeon in chief to the Royal Victoria Hospital; member of the American Surgical Association and the American Association for Thoracic Surgery; aged 55; died, February 13.

Eugene Eunson Hinman ✠ Albany, N. Y.; Albany Medical College, 1899; clinical professor of otolaryngology at his alma mater; member of the American Academy of Ophthalmology and Oto-Laryngology; past president and secretary of the Albany County Medical Society; fellow of the American College of Surgeons; on the staffs of the Memorial Hospital of Greene County, Catskill, and St. Luke's Hospital, Newburgh, and the Albany and Child's hospitals; aged 61; died, January 20, of coronary thrombosis and arteriosclerosis.

William Basil Keeler, Boston; Tufts College Medical School, Boston, 1903; member of the Massachusetts Medical Society; past president of the Norfolk District Medical Society; health commissioner of Boston; at one time medical inspector

for the South Boston health unit; for many years medical supervisor of the parochial schools of Boston; formerly on the staff of St. Margaret's Hospital; aged 59; died, February 11, of bronchopneumonia.

Benjamin Baker Moeur, Tempe, Ariz.; Arkansas Industrial University Medical Department, 1896; governor of Arizona, 1933-1937; member of the Constitutional Convention of Arizona in 1910; president of the Arizona State Board of Health, 1933-1937; for twelve years secretary of the board of education of the Arizona State Teachers College; aged 67; died, March 16, of coronary occlusion.

Charles Rufus Skinner ⊕ Hudson, N. Y.; University of Vermont College of Medicine, Burlington, 1899; secretary of the Columbia County Medical Society for ten years; deputy health commissioner of Columbia County; school physician; aged 65; formerly on the staff of the Hudson City Hospital, where he died, January 1, of lobar pneumonia and mitral insufficiency.

James Benjamin Dougherty ⊕ Canton, Ohio; Ohio Medical University, Columbus, 1903; member of the Associated Anesthetists of the United States and Canada; past president of the Stark County Medical Society; served during the World War; on the staff of the Aultman Hospital; aged 57; died, January 22, in Naples, Fla., of coronary thrombosis.

William Merritt Conant, Boston; Harvard University Medical School, Boston, 1884; fellow and a founder of the American College of Surgeons; member of the Massachusetts Medical Society and the American Association of Anatomists; honorary consulting surgeon to the Massachusetts General Hospital; aged 81; died suddenly, February 18.

Lloyd P. Warren Sr. ⊕ Wichita, Kan.; Beaumont Hospital Medical College, St. Louis, 1900; fellow of the American College of Surgeons; on the staff of the Wichita Hospital; an associate editor and formerly editor of the *Medical Bulletin,* official publication of the Sedgwick County Medical Society; aged 66; died, January 17, of carcinoma.

Thor Christian Rothstein, Chicago; Karolinska Mediko-Kirurgiska Institutet, Stockholm, Sweden, 1897; professor emeritus of neurology, Rush Medical College; aged 72; on the consulting staff of the Augustana Hospital and on the staff of the Presbyterian Hospital, where he died, February 19, of arteriosclerosis and coronary thrombosis.

Joseph William Scannell, Lewiston, Maine; University of Maryland School of Medicine, Baltimore, 1906; member of the Maine Medical Association; formerly fire commissioner; on the staff of the Central Maine General Hospital; chairman of the cancer committee of the Maine Medical Association; aged 53; died, January 16, of heart disease.

John Alexander Houston, Northampton, Mass.; Medical School of Maine, Portland, 1880; member of the Massachusetts Medical Society, the American Psychiatric Association and the New England Society of Psychiatry; for many years superintendent of the Northampton State Hospital; aged 77; died, January 18, of coronary thrombosis.

Howard Jay Teller ⊕ Rome, N. Y.; Baltimore University School of Medicine, 1898; past president of the Oneida County Medical Society; formerly county coroner, alderman and county physician; on the staff of the Rome Hospital and Murphy Memorial Hospital; aged 61; died, January 28, of coronary thrombosis.

Ira Jackson Tatum, Union City, Tenn.; University of Tennessee Medical Department, Nashville, 1900; served during the World War; formerly connected with the U. S. Veterans Bureau; aged 71; on the staff of the Edwin W. Cocke Sanatorium, Memphis, where he died, January 4, of coronary occlusion.

Harry Hubbard Brookhart ⊕ Columbus, Kan.; Marion-Sims College of Medicine, St. Louis, 1895; president of the Cherokee County Medical Society; served during the World War; on the staff of the Maude Norton Memorial City Hospital; aged 64; was killed, January 29, in an automobile accident.

Emory William Reisinger, Fairfax, Va.; Georgetown University School of Medicine, Washington, D. C., 1893; member of the faculty at his alma mater, 1895-1917, when he resigned as assistant professor of anatomy; aged 65; died, January 20, in Staunton of mitral regurgitation and bronchopneumonia.

Alpheus Freeman, New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1882; member of the Medical Society of the State of New York; for many years on the staff of the Presbyterian Hospital; aged 77; died, January 25, in a local hospital.

Charles Hunt, Clinton, Ky.; University of Nashville (Tenn.) Medical Department, 1900; member of the Kentucky State Medical Association; served during the World War; county health officer; bank president; aged 62; died, January 24, in the Illinois Central Hospital, Paducah.

Halvor Holte, Crookston, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1893; member of the Minnesota State Medical Association; fellow of the American College of Surgeons; aged 79; died, January 2, in the Bethesda Hospital, of pneumonia.

Samuel James Blanchflower Collins, Whiteville, N. C.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1913; L.R.C.P. Edinburgh, 1930; L.R.C.S. Edinburgh, and L.R.F.P.S. Glasgow, 1930; aged 62; died, January 20, in a hospital at Durham, of angina pectoris.

Hugh J. Coll, Connellsville, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1895; member of the Medical Society of the State of Pennsylvania; aged 67; on the staff of the Connellsville State Hospital, where he died, January 27, of cerebral thrombosis.

Frederick Erastus Hamlin, Brooklyn; University of the City of New York Medical Department, 1893; member of the Medical Society of the State of New York; for many years an examining physician for the Prudential Life Insurance Company; aged 71; died, January 29.

George B. M. Free ⊕ York, Pa.; University of Maryland School of Medicine, Baltimore, 1883; University of Pennsylvania Department of Medicine, Philadelphia, 1884; formerly on the staff of the Danville (Pa.) State Hospital; aged 75; died, January 16, of pneumonia.

Alpheus Luther Pollard, Sedalia, Mo.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1893; member of the Missouri State Medical Association; formerly city physician; aged 81; died, January 2, of essential hypertension and hemiplegia.

Spencer S. Wade, Morgantown, W. Va.; Jefferson Medical College of Philadelphia, 1884; member and past president of the West Virginia State Medical Association; for many years a member of the board of education; aged 79; died, January 22, of internal hemorrhage.

Myron Henry Davis ⊕ Saugus, Mass.; Harvard University Medical School, Boston, 1885; health officer of Saugus; school physician; on the staff of the Lynn (Mass.) Hospital; aged 74; died, January 21, of bronchopneumonia, arteriosclerosis and chronic myocarditis.

Phau Rivers Outlaw, El Paso, Texas; Bellevue Hospital Medical College, New York, 1893; member of the State Medical Association of Texas; served during the World War; formerly health officer of El Paso; aged 67; died, January 12, of pulmonary tuberculosis.

Leland Grant Hewitt, Northwood, Iowa; Rush Medical College, Chicago, 1892; member of the Iowa State Medical Society; past president of the Worth County Medical Society; for many years county coroner; aged 70; died, January 31, of pulmonary abscess.

Andrew J. Minaker ⊕ San Francisco; Hahnemann Hospital College of San Francisco, 1899; College of Physicians and Surgeons of San Francisco, 1902; served during the World War; aged 60; died, January 16, in the Franklin Hospital, of bronchopneumonia.

George Kirby Sims ⊕ Bolivar, Mo.; Northwestern University Medical School, Chicago, 1922; secretary of the Dallas-Hickory-Polk Counties Medical Society; aged 56; died, January 24, in St. John's Hospital, Joplin, of meningitis and lobar pneumonia.

Erskine Marshall Barnes, Lincoln, Neb.; Lincoln Medical College of Cotner University, Lincoln, 1903; veteran of the Spanish-American and World wars; on the staff of the Veterans Administration Facility; aged 60; died, January 4, of coronary thrombosis.

Charles Sumner Neer ⊕ Vinita, Okla.; St. Louis University School of Medicine, 1906; formerly part owner of the Vinita Hospital; aged 57; died, January 22, in St. Anthony's Hospital, Oklahoma City, following an operation for gastric ulcer.

Forest Clyde Van Hook, Mount Pulaski, Ill.; Northwestern University Medical School, Chicago, 1913; for several years a member and president of the board of education; aged 49; died, January 29, in Tucson, Ariz., of diabetes mellitus.

Robert Anderson Taylor ⊕ Topeka, Kan.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1906; served during the World War; aged 55; on the staff of the Christ's Hospital, where he died, January 31, of pneumonia.

Evan Jones Smith ✠ Irvington, N. Y.; University of Buffalo School of Medicine, 1895; medical officer of the school district; on the staff of the Dobbs Ferry (N. Y.) Hospital; aged 70; died, February 12, of carcinoma of the sigmoid.

Harry Edwin Burdick ✠ David City, Neb.; Omaha Medical College, 1899; fellow of the American College of Surgeons; served during the World War; co-founder of the David City Hospital; aged 59; died, January 12, of lobar pneumonia.

Jay Logan Magill, Holdrege, Neb.; University Medical College of Kansas City, Mo., 1900; member of the Nebraska State Medical Association; aged 58; died, January 23, at the Holdrege Hospital, of bronchopneumonia and influenza.

Addison Morgan, Fall Brook, Calif.; University of Michigan Homeopathic Medical School, Ann Arbor, 1881; formerly coroner of San Diego County; veteran of the Spanish-American War; aged 78; died, January 8, of chronic myocarditis.

Colin McFarquhar Reed ✠ Youngstown, Ohio; University of Pittsburgh School of Medicine, 1915; served during the World War; aged 49; died, January 23, in the North Side Unit of the Youngstown Hospital, of intestinal obstruction.

John Thames ✠ Charleston, W. Va.; Louisville (Ky.) Medical College, 1894; served during the World War; county health officer; formerly health officer of Little Rock; aged 65; died, January 11, of arteriosclerotic heart disease.

Charles Weber, Cincinnati; Cincinnati College of Medicine and Surgery, 1881; aged 79; died, January 28, in the Good Samaritan Hospital from the effects of carbon monoxide poisoning caused by a defective furnace in his home.

Morton Earl Fox, Uncasville, Conn.; Long Island College Hospital, Brooklyn, 1893; member of the Connecticut State Medical Society; health officer of Montville; aged 66; died, January 2, of bronchopneumonia and anemia.

Isaiah Alpheus Boyd, Washington, D. C.; Meharry Medical College, Nashville, Tenn., 1890; Howard University College of Medicine, Washington, D. C., 1891; aged 71; died, January 23, in the Freedmen's Hospital, of pneumonia.

Bernard Joseph Wess, Baltimore; Baltimore Medical College, 1905; member of the Medical and Chirurgical Faculty of Maryland; aged 54; on the staff of St. Joseph's Hospital, where he died, January 9, of coronary thrombosis.

Frank Estil Casburn, Holly, Colo.; University of Kansas School of Medicine, Kansas City, 1906; member of the Colorado State Medical Society; aged 57; died, January 29, in Lamar, of hypertension, myocarditis and nephritis.

Joseph Griffin Waldrop, Hot Springs National Park, Ark.; Memphis (Tenn.) Hospital Medical College, 1901; member of the Arkansas Medical Society; aged 62; died, January 17, of cerebral hemorrhage and hypertension.

Thomas Quincy Ray, Andalusia, Ala.; Atlanta (Ga.) Medical College, 1895; member of the Medical Association of the State of Alabama; aged 71; died suddenly, January 3, of cerebral hemorrhage and hypertension.

Horace Snoad Cooper, Denver; Denver College of Medicine, 1900; member of the Colorado State Medical Society; served during the World War; aged 66; died in January, at St. Luke's Hospital, of pneumonia.

Edwin Henry Harvey ✠ Atlantic City, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1895; aged 67; died, February 22, in the Pennsylvania Hospital, Philadelphia, of cerebral hemorrhage.

Bryant Smith, Oconomowoc, Wis.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1891; aged 71; died, January 7, in Milwaukee, of rupture of the aorta and arteriosclerosis.

Howard Mendenhall Buck, Boston; Harvard University Medical School, Boston, 1882; member of the Massachusetts Medical Society; aged 80; died, January 11, of bronchopneumonia and cerebral thrombosis.

Arthur Conant Poe, Cleveland; Long Island College Hospital, Brooklyn, 1885; a medical examiner for the Metropolitan Life Insurance Company for many years; aged 72; died, January 22, of cerebral sclerosis.

Thomas Nicholas Burke, Elkhorn, Neb.; John A. Creighton Medical College, Omaha, 1904; for many years a member of the village board and school board; aged 61; died, January 5, of carcinoma of the cecum.

Joseph Henderson Coffee, Arcadia, Fla.; Atlanta College of Physicians and Surgeons, 1910; formerly member of the state legislature; aged 58; died, January 25, in a local hospital, of influenza and pneumonia.

Norman H. Haviland, Fulton, N. Y.; Eclectic Medical College of Pennsylvania, Philadelphia, 1872; Homeopathic Hospital College, Cleveland, 1873; aged 92; died, February 13, of carcinoma of the prostate.

Edward Williamson Perkins, Petersburg, Va.; University of the South Medical Department, Sewanee, Tenn., 1903; member of the Medical Society of Virginia; aged 59; died, January 23, of heart disease.

Edward Otis Parker ✠ Pendleton, Ore.; Willamette University Medical Department, Salem, 1903; formerly physician in the Indian Service; aged 64; died, January 21, of coronary occlusion and sclerosis.

William K. Sheddan, Columbia, Tenn.; University of Tennessee Medical Department, Nashville, 1887; formerly secretary of the Maury County Medical Society; aged 78; died, January 8, of hemiplegia.

William Smith Crosby, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1900; aged 59; died, January 15, in the Philadelphia General Hospital, of cirrhosis of the liver.

Joseph Aloysius Ball, Los Angeles; John A. Creighton Medical College, Omaha, 1898; formerly a practitioner in Stuart, Iowa, and Council Bluffs, Iowa; aged 64; died, January 22, of pneumonia.

David William Rosen, Boston; Tufts College Medical School, Boston, 1910; member of the Massachusetts Medical Society; aged 57; died, January 3, in the Beth Israel Hospital, of hypertension.

Ernest Dalton Richmond, Reading, Mass.; University of Vermont College of Medicine, Burlington, 1894; member of the Massachusetts Medical Society; aged 67; died, January 4, of heart disease.

Robert Hamilton Folk, Belton, S. C.; University of Maryland School of Medicine, Baltimore, 1916; served during the World War; aged 48; died, January 17, of bronchopneumonia and myocarditis.

Hiram S. Jones, Carroll, Ohio; University of Wooster Medical Department, Cleveland, 1879; aged 87; died, January 2, in the McMillen Sanitarium, Columbus, of pneumonia and arteriosclerosis.

Adelbert DeRoy Haines, Rochester, N. Y.; Eclectic Medical Institute, Cincinnati, 1884; aged 76; died, January 21, in the Highsmith Hospital, Fayetteville, N. C., of myocarditis and prostatectomy.

S. Claude Andrus ✠ Rockford, Ill.; Northwestern University Medical School, Chicago, 1897; aged 64; formerly on the staff of the Rockford Hospital, where he died, January 12, of pneumonia.

Ephraim W. Ellis, Dunbarton, S. C.; University of Georgia Medical Department, Augusta, 1891; aged 74; died, January 3, in Augusta, Ga., of hypertrophy of the prostate and bronchopneumonia.

Estella Clark Carpenter, Chicago; Jenner Medical College, Chicago, 1903; member of the Illinois State Medical Society; aged 69; died, January 26, of carcinoma of the intestine and lung.

James E. Cunningham, Chicago; Northwestern University Medical School, Chicago, 1896; aged 48; died, January 27, in the Veterans Administration Facility, Hines, Ill., of coronary occlusion.

Thomas W. Wilkinson, San Antonio, Texas (licensed in Texas, under the Act of 1907); formerly a medical missionary; aged 67; died, January 8, of coronary thrombosis and arteriosclerosis.

Philip Wolfman, New Brunswick, N. J.; Albany (N. Y.) Medical College, 1903; aged 64; died, January 3, in the General Hospital, Perth Amboy, of cerebral thrombosis and diabetes mellitus.

Henry Bradford Babbitt, Brockton, Mass.; Boston University School of Medicine, 1888; aged 71; died, Dec. 20, 1936, in Foxboro, of Adams-Stokes' syndrome and cerebral arteriosclerosis.

Mora Simeon Bulla, Elizabeth City, N. C.; Miami Medical College, Cincinnati, 1905; on the staff of the Albemarle Hospital; aged 55; died, January 28, of hemiplegia and hypertension.

James Dallas Liles, Vanceburg, Ky.; University of Louisville Medical Department, 1905; member of the Kentucky State Medical Association; aged 55; was found dead, January 16.

Leonard Erhard Bartz ✠ Windsor, Colo.; Denver College of Physicians and Surgeons, 1903; owner of the Bartz Memorial Hospital; aged 63; died, January 18, of angina pectoris.

James Franklin Davies, Callaway, Neb.; Omaha Medical College, 1893; member of the Nebraska State Medical Association; aged 66; died, January 3, of coronary occlusion.

Josiah Green Smith, Port Arthur, Texas; Louisville (Ky.) Medical College, 1888; member of the State Medical Association of Texas; aged 80; died, January 3, of erysipelas.

Elias John Helgesen, Evansville, Wis.; College of Physicians and Surgeons, Keokuk, Iowa, 1893; aged 70; died, January 22, of uremia, nephritis and heart disease.

Hugh Hagan Lenahan, New Hartford, N. Y.; Syracuse University College of Medicine, 1903; aged 58; died, January 17, of lobar pneumonia and chronic nephritis.

John Alfred Freezee, Bunker Hill, Ind.; Hospital College of Medicine, Louisville, Ky., 1897; aged 69; died, January 6, of carcinoma of the prostate and myocarditis.

John Jackson Johnson, Calhoun, Ga.; Emory University School of Medicine, Atlanta, 1932; aged 29; died, January 9, of injuries received in an automobile accident.

Herbert B. Wright, Skaneateles, N. Y.; Syracuse University College of Medicine, 1881; aged 85; died, January 13, of cerebral hemorrhage and arteriosclerosis.

Robert Algie ✠ Clay Center, Kan.; Barnes Medical College, St. Louis, 1899; served during the World War; aged 60; died, January 25, of splenomyelogenous leukemia.

Sarah Gaston Frack, Niles, Ohio; Cleveland University of Medicine and Surgery, 1895; aged 67; died, January 31, in Los Angeles, of a cerebral hemorrhage.

George Edward Norton ✠ Cambridge, Mass.; University of Vermont College of Medicine, Burlington, 1899; aged 72; died, January 6, of cardiorenal disease.

Harvey Edmund Colvin, Burlington, Vt.; Chicago Homeopathic Medical College, 1880; aged 82; died, January 10, of chronic myocarditis and nephritis.

John Volmer, Wichita, Kan.; University of Arkansas School of Medicine, Little Rock, 1913; aged 59; died, January 15, of cerebral hemorrhage.

Albert Lincoln Winslow, Danville, Va.; Leonard Medical School, Raleigh, N. C., 1893; aged 70; died, January 13, of progressive muscular atrophy.

Sadie Monahan, Dayton, Ohio; Laura Memorial Woman's Medical College, Cincinnati, 1896; aged 78; died, January 29, of cerebral hemorrhage.

Clyde D. Schurtz ✠ Alexandria, Ind.; Rush Medical College, Chicago, 1885; aged 77; died, January 27, in St. John's Hospital, Anderson.

Harry Lovejoy Coleman ✠ Farragut, Iowa; Rush Medical College, Chicago, 1891; aged 70; died suddenly, January 23, of angina pectoris.

Millard Fillmore Funk, Mowrystown, Ohio; Eclectic Medical Institute, Cincinnati, 1884; aged 82; died, January 27, of Addison's disease.

Kate Z. Horner Jacobson, Sioux City, Iowa; Sioux City College of Medicine, 1896; aged 68; died, January 6, of bilateral lobar pneumonia.

Wallace C. Quinn, Brockway, Pa.; College of Physicians and Surgeons, Baltimore, 1884; aged 76; died, January 25, of heart disease.

Edmon Arthur Gilson, San Antonio, Texas; Toledo Medical College, 1905; aged 64; died, January 23, of coronary thrombosis.

William H. Dempsey ✠ Alton, Ill.; Missouri Medical College, St. Louis, 1898; aged 65; died, January 29, of bronchopneumonia.

George Whitefield Hopkins, Cleveland; Cleveland Medical College, 1896; aged 64; died, January 19, of chronic interstitial nephritis.

John Fahrner Sr., Joliet, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1882; aged 82; died, Dec. 29, 1936.

Israel Goldwin Smith, Ottawa, Ont., Canada; University of Toronto Faculty of Medicine, 1896; died, Dec. 25, 1936.

Edward J. Taggart ✠ Bremerton, Wash; Omaha Medical College, 1888; aged 73; died, January 16, of pneumonia.

Elizar Kent Bailey, Ogallala, Neb.; Chicago Medical College, 1877; also a minister; aged 88; died, January 11.

Albert James Tilton, Brooklyn; College of Physicians and Surgeons of Chicago, 1890; aged 73; died, January 7.

Cicers Camp, Patmos, Ark. (licensed in Arkansas in 1903); aged 66; died, January 28.

Bureau of Investigation

J. R. BRINKLEY AND HIS FORMULA NO. 1020

At various times there arises in the history of quackery some extraordinary individual before whose accomplishments all previous charlatans fade into insignificance. In the history of quackery, the names of Elisha Perkins, Zeileis, Asuero, Abrams, Brinkley and Baker loom large. Many of those named have gone to the quack's ultimate reward, proving at the same time in some instances that the wage of sin is not only death. The career of John R. Brinkley is not yet ended. From the time when he first appeared on the American scene, through the period of his residences in New York and Kansas, and to that of his present domicile in Texas, he has stood out in bold relief even among such fascinating competition as the world now affords. The latest development in his career is the promotion of formula No. 1020. This concoction, it seems, is given to patients who have previously submitted themselves to the personal ministrations of J. R. Brinkley and who are willing to spend sums like $100 for six ampules of the new remedy, in order that they may be still further benefited by his extraordinary talents.

Various physicians have submitted to the Chemical Laboratory of the American Medical Association ampules labeled:

"20 c. c. plus
Formula No. 1020
Prepared especially for
J. R. Brinkley, M.D.
Del Rio, Texas"

Thus a Mississippi physician writes:

"A few days past I wrote to you relative to the Dr. Brinkley operation and treatment . . . This morning a man came in to see me with a box of ampules, requesting that I give him two per day intravenously. He had been to Dr. Brinkley but failed to remain until the treatment was completed. I am sending you one of these ampules for analysis. The container states that it is made by Val Verde Co. of Del Rio, Texas, for Dr. Brinkley. I have refused to administer the same unless the formula is furnished."

A Nashville, Tenn., physician states:

"We are mailing you under separate cover an ampule of liquid which John R. Brinkley of Del Rio, Texas, sells to patients at the rate of six ampules for $100. They are given intravenously. We are interested to know what the chemical analysis shows to be its contents. Any information you can furnish us will be appreciated."

From Wyoming a physician inquires:

"I am mailing you under separate cover an ampule of medicine used by Dr. J. R. Brinkley. I have had several requests by some of my patients to administer it to them, intravenously, and before doing so would like to know what this ampule contains . . ."

From a Wisconsin physician:

"Under separate cover I am sending by first class mail the ampule sent by Brinkley. Any information you can give me regarding its contents will be appreciated."

The laboratory submits the following report:

LABORATORY REPORT

"The physical appearance of each ampule resembled the others, though the sources were different. Each ampule contained about 20 cc. of a clear solution having a sky blue color, odorless, and practically tasteless. The density of the liquid was 0.9985 at 25 degrees. This is practically the same as that of water at 25 degrees (0.9971). On evaporating the solution there remained a very small residue, bluish in color, amounting to 0.004 per cent and in terms of sulfated ash was 0.003 per cent. Spectrographic analysis indicated the presence in extremely small amounts of such metallic constituents as silicon, zinc, magnesium, iron, copper, sodium and calcium. Macro- and micro-chemical investigation indicated that the organic blue material was a dye of the indigo type containing a very small amount of zinc. Synthetic solutions containing indigo dyes were prepared, based on the foregoing information. Each contained 0.001 Gm. of the dye to 100 cc. of distilled water. The

colors were matched with each other and found to correspond in shade and hue to that of the Brinkley ampules. Photospectrographic examinations (absorption spectra) corroborated the chemical analysis suggesting the presence of the indigo dye.

"From the foregoing it is concluded that a solution having essentially the same characteristics as that labeled 'Formula No. 1020, J. R. Brinkley, M.D.' may be prepared by dissolving one part of indigo in 100,000 parts of water. Such a solution is essentially water to which has been added a dash of blue dye."

The kind of genius capable of taking a body of water like Lake Erie, coloring it with a dash of bluing and then selling the stuff at $100 for six ampules represents a type which all the world up to now has never been able to equal. John R. Brinkley is the absolute apotheosis in his field. Centuries to come may never produce again such blatancy, such fertility of imagination or such ego.

Correspondence

"THE PROBLEM OF SCHOOL MEDICAL AND DENTAL SERVICE"

To the Editor:—The importance of Dean Smiley's article (THE JOURNAL, February 6) on "The Problem of School Medical and Dental Service" cannot be overestimated. It is properly stated that the school is the child's second home. A considerable portion of childhood is spent in the school. The necessity of keeping children well during this period is readily realized. As health director of the city schools of Albany for five years, I have had first hand information not only of local but also of state school health organizations. Each state has its own rules, regulations and laws. Some are more involved than others. Some are affiliated with the education department. Still others are associated with the state and local health bureaus. It is difficult to determine which is more efficient. As far as school health being directed by education authorities, as in New York State, is concerned, there is one thing that I particularly noted; that is, the complete dissociation of the various bureaus dealing with child health. For example, in the New York State department of education there are eight such bureaus. They are as follows: health teaching, physically handicapped, mentally handicapped (research), rehabilitation, physical education, medical inspection, medical examiners and dental examiners. The first five of these are supervised by teachers, the next two by physicians, and the last by a dentist. The confusion that not infrequently results may be realized when it is noted that at times the physical educator in charge of his department would be superior to the doctors and nurses in the medical inspection bureau. To a lesser extent health activities are supervised in other education bureaus.

My experience has shown me that every bureau is a separate and distinct entity. The bureau of medical inspection is most properly named in that the school physician seems to be employed particularly to inspect or examine the pupils. The other health duties mostly are relegated to the various bureaus mentioned.

The solution to the problem may not be too difficult. Two remedies I believe could be applied: 1. A physician should be in charge and directly responsible for the pupil's health in school, the same as it is in the home. 2. There should be an amalgamation and coordination of all education bureaus dealing in health. We know that we have those in our profession qualified in education as well as in medicine. There are two of our larger universities that have physicians as presidents. Many other medical men are prominent educators. One of these could capably direct and coordinate all the health bureaus so that there would be the greatest efficiency and at the same time unquestionably better economy. Simply to take the bureau of medical inspection from the department of education and place it in the department of health would be to no avail, unless all the other health branches of education would be similarly transferred. This might present many difficulties. The plan mentioned would be more practical. This is in accord with the frequently expressed opinions of the American School Physicians Association, as mentioned in its journal.

In each state, departments of health and education, in conjunction with the state medical society, could undoubtedly evolve the most practical formula. The best results could thereby be obtained, whichever of Dean Smiley's plans would be acceptable, whether the school physician or, as he prefers, the private physician would have more contact with the pupil.

WILLIAM L. GOULD, M.D., Albany, N. Y.

HYPERSENSITIVITY TO ACETYLSALICYLIC ACID

To the Editor:—In the February 6 issue of THE JOURNAL appears an article entitled "Hypersensitivity to Acetylsalicylic Acid (Aspirin)" in which the authors deprecate the use of aspirin in allergic conditions. They list (p. 446) ten conditions of an allergic nature which follow the ingestion of aspirin and make the statement "No more convincing argument against the use of acetylsalicylic acid as a remedy for asthma is needed except to point out . . . the cases of death resulting from its use by asthmatic patients." In THE JOURNAL, Nov. 21 1936, page 1717, appears an article entitled "The Therapy of (Horse) Serum Reactions." Dr. Fantus recommends (p. 1719) the use of acetylsalicylic acid (a 0.3 Gm. capsule every two or four hours as required) as a remedy for the pruritus accompanying a serum reaction. I take it that the point of view of the two authors is rather diametrically opposite. It seems to me to be a point of some practical importance that some reconciliation be effected between these two divergent therapeutic thoughts.

ROY E. REED, M.D., New York.

[This letter was referred to Dr. Prickman, who replies:]

To the Editor:—In our paper "Hypersensitivity to Acetylsalicylic Acid (Aspirin)," Dr. Buchstein and I point out the serious reactions that occasionally occur following the ingestion of acetylsalicylic acid. We are aware that this remedy has been used by many allergic individuals without ill effects; one of our patients in fact estimated that he took 4,000 tablets (5 grains each) of acetylsalicylic acid a year for his asthma without encountering any trouble. However, it seemed to us very significant that sixty-one of the sixty-two individuals found sensitive to this drug had other allergic manifestations themselves or were from definitely allergic families. Nine additional patients hypersensitive to acetylsalicylic acid have been encountered since completing the study, and these also had other evidence of major allergy without exception. Since we found the reactions to acetylsalicylic acid very severe, at times even grave, and since we believe the incidence of sensitivity to acetylsalicylic acid to be greater than is ordinarily supposed, and since we have shown the persons who need to be especially cautious in using acetylsalicylic acid are those who have other allergy or come of allergic families, we believe that our conclusions are not unwarranted.

LOUIS E. PRICKMAN, M.D., Rochester, Minn.

[The letter was referred also to Dr. Fantus, who writes:]

To the Editor:—The fact is that dermatologists find acetylsalicylic acid in the form of 0.3 Gm. capsules their most efficient remedy against several varieties of pruritus, including that of urticaria, and this in spite of the fact that urticaria is one of the untoward effects of acetylsalicylic acid. Ill results from this treatment have not been brought to attention.

BERNARD FANTUS, M.D., Chicago.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

SNORING

To the Editor:—Will you be good enough to discuss the subject of snoring, especially as to etiology and treatment, preferably in "Queries and Minor Notes" or by direct correspondence? This subject must be of general interest since not a few patients have consulted me concerning it —but nowhere can I find any discussion of it.

H. J. HARRIS, M.D., Westport-on-Lake Champlain, N. Y.

ANSWER.—Snoring or unusual noises accompanying inspiration or expiration or both in deep sleep, in coma or in deep anesthesia involve several factors. The actual noises are made by intermittent passage of the air at regions of partial obstruction to the passage of the air. The factors that lead to such partial obstruction may be:

1. Partial obstruction of the glottis by approximation of the vocal cords owing to the extreme relaxation of the muscles governing the vocal cords.
2. The falling backward of the tongue, particularly when the person in deep coma or under anesthesia lies on his back.
3. Relaxation of the muscles governing the position of the soft palate, so that this structure falls against the roof of the pharynx or the hard palate. This would tend to interfere with the passage of the air through the nose in expiration if the person lies on his back.
4. Presence of mucus in the nasal passages.
5. Possible abnormal tonus both in the muscles of the pharynx as well as in the muscles of the soft palate.

The common explanation of snoring is that it is due to vibration of the relaxed soft palate. This explanation is probably inadequate, particularly as to the etiology of the snoring noises that may accompany expiration, because if the soft palate is completely relaxed and the person lies on his back it is more than likely to close the passage through the nose and not vibrate at all but merely force the air through the lips. If the lips are moderately closed, noises will be produced during the act of expiration.

One can voluntarily produce snoring noises during the waking state during deep inspiration with a partly closed glottis, intermittent passage of the air through the obstructed glottis producing the noise. One can similarly in a waking state produce snoring noises by voluntarily closing the pharynx from the nose by means of the soft palate and in expiration forcing the air through moderately tightened lips.

Snoring is an annoyance to other people rather than to the snorer. Rarely does snoring disturb the soundness of sleep of the snorer himself. It is not even classed as a functional pathologic condition. Snoring is less liable to occur if the person goes to sleep and stays asleep on either side or on the abdomen. A thorough clearing of the nasal passages before going to sleep also may aid.

KÜMMELL'S DISEASE OF SPINE

To the Editor:—Would you please give me information concerning Kümmell's disease or the so-called nucleus pulposus of the spine?

J. F. MALLOY, M.D., Mitchell, S. D.

ANSWER.—The inquirer evidently thinks that Kümmell's disease and nucleus lesions are synonymous: they are not. The reader may refer to the original book of Schmorl concerning the intervertebral disk and to the best English abstract, by Beadle.

The importance of the intervertebral disk is found in such conditions as injuries to the spine, kyphosis of senility, adolescent kyphosis, calcification or ossification of the disks and senile osteoporosis.

Keyes and Compere divide the pathologic lesions of the nucleus pulposus into four groups: (1) retropulsion or antipulsion of the nucleus pulposus, (2) lateral shift of the nucleus pulposus, (3) calcification of the nucleus pulposus, and (4) dehydration of the nucleus pulposus. Keller stated that the size and thickness of the intervertebral cartilages or disks are in close relationship to and developed in accordance with the amount and extent of mobility of the spine. The thoracic vertebrae, having limited motion, have the smallest disks, while the cervical and the lumbar, with their free mobility, have the larger. The intervertebral disks act as shock absorbers, or buffers, and diminish the jarring of the vertebrae produced in walking, and also prevent the jarring of the steps taken from being transmitted to the head. The latter function is further assisted by the natural spinal curves. Any diminution of the size of the intervertebral cartilages will have an effect on the welfare of the body as a whole, through its irritating effect on the nervous system.

Although the intervertebral disks have been known for many years and were written about by Vesalius and Luschka in 1852, it remained for Schmorl in 1927 to disseminate information on which the clinical importance of these structures has been recognized.

Freedman states the intervertebral disk consists of the nucleus pulposus and the annulus fibrosus. The soft mass of the nucleus is usually eccentrically situated and is considered to be the remnant of the chorda tissue of the embryonic spine. The risks form approximately one fourth of the total length of the vertebral column and vary in vertical thickness in several regions, being thickest in the lumbar and thinnest in the upper thoracic region. The nucleus is highly compressible and elastic, the annulus relatively inelastic. The disks thus form delicate buffers between the vertebrae, absorbing shocks transmitted through the spine.

Schmorl thinks that a primary disease of the disk is possible only in young adults, as they possess a vascularized disk.

The disk consists of two parts, an envelop and a core. The former is made up of vertical plates of fibers, one within the other and grading in structure from ordinary fibrous tissue with crisscrossing strands on the outer part to white fibrocartilage on the inner part. The core is yellow and consists of highly elastic fibrocartilage, soft and pulpy in character, with some elastic fibers running through it. It is under great tension, so much so that when the envelop is slit horizontally this core bulges above the level of the surrounding tissues. The nucleus pulposus is a gelatinous substance under pressure and enclosed in the center of each intervertebral disk. The disk is composed of a peripheral fibrous ring called the annulus fibrosus, with a soft central substance. Inside the intervertebral disk, in the center of a compact fibrous ring and between two bony layers protected by a cartilaginous coating, is a gelatinous round mass, under pressure, called the nucleus. There is a direct connection between the epiphyseal plate and the disk. The annulus fibrosus is elastic and the nucleus pulposus is compressible.

Schmorl believed that the cartilage protects the vertebral tissue against the nucleus and the tissue of the disk against infection. Calvé and Galand believe that the nucleus acts as a bearing inserted between two adjacent bodies. The nucleus is important as an axis for the movements which under pressure provide for the elasticity of the disk; it transmits, absorbs and equalizes pressure. It is a soft gelatinous mass, irregularly ovoid, which is found under pressure in the center of each intervertebral disk. Compere called it a hydrodynamic ball bearing.

The clinical manifestations of Kümmell's disease were described in 1891 by Kümmell. It is called the Kümmell-Verneuil syndrome, post-traumatic spondylitis or vertebral collapse. The work of Leriche has helped to clarify the etiology and pathogenesis. He calls it traumatic malacia of the vertebral column.

This lesion is due to mild or severe injury to the spine, following which the patient usually passes through three clinical phases. The syndrome known by the names of Kümmell and Verneuil was studied by Bonnet in 1857. Schede also called attention to softening of the vertebrae secondary to trauma. Kümmell, however, was the first definitely to distinguish the three stages of the syndrome. In 1891 Kümmell described the wedge compression under the name of spondylitis traumatica. Great credit is due him because his work was done before the x-rays had been discovered. There are many unrecognized cases of Kümmell's disease.

The etiology is a moderate or severe trauma occurring in an otherwise normal back. The work of Kalisko and Schroll bears out the thought that Kümmell's disease is caused by minute traumas to osseous and ligamentous structures of the spine, the trauma causing chiefly cracks and small hemorrhages. Kümmell's article states that the disease does not always result from a compression fracture of the spinal segment but that in many instances trauma to the vertebral column without compression of the bodies is followed by rupture of the blood vessels and injury to the periosteum and atrophy of the spongiosa of the vertebral bodies followed by a gradual compression of the segments with a permanent kyphosis.

There are two explanations of the syndrome. According to one, the condition is the result of unrecognized fractures. According to the other, there is a secondary flattening of the vertebrae. It is well known that even severe vertebral fractures may be unrecognized and cause delayed symptoms. Roederer reports two cases of vertebral fractures that were at first not recognized; he states that undoubtedly a certain number of cases in which a diagnosis of Kümmell-Verneuil syndrome is made belong to this group. From observations made on the extremities it is known that osteoporosis may follow trauma. The resorption of bone may follow the prolonged hyperemia. The fact that in many cases presenting the syndrome a considerable portion of the spine is involved indicates that the initial lesion is not a fracture. Marie attributed the deformity to tearing of the anterior vertebral ligaments with subsequent retraction.

Blaine believes that the initial lesion is a minor degree of compression of a vertebral body, but careful x-ray examination of the spine made immediately after injury shows no fractures of the vertebra, which on later x-ray study is found to be decreased in height, indicating a partial collapse.

Leriche believes that Kümmell's disease is due to posttraumatic rarefaction and ossification due to hyperemia. He believes that the delay in the production of the rarefaction is due to the effects of hyperemia. This is brought about by the repeated internal trauma to an improperly balanced spinal column rather than by the external initial injury. Anything precipitating or increasing the process of vasodilatation such as an intercurrent infection, anything that impoverishes the bone and calcium, accelerates the evolution of the changes.

LATENT OR WASSERMANN FAST SYPHILIS

To the Editor:—After treating a man and his wife nine months intensively for syphilis with neoarsphenamine and bismuth oxychloride I found that their serum test was little if any altered. They were:

	Man		Wife	
		Wassermann-		Wassermann-
	Kahn	Kolmer	Kahn	Kolmer
Feb. 11, 1936.....	1 plus	4 plus	4 plus	4 plus
June 13, 1936.....	2 plus	4 plus	4 plus	4 plus
Dec. 18, 1936.....			3 plus	4 plus

They were not treated for syphilis until February 1936. The man had apparently contracted the disease four and one-half years before that date and the wife about (this is surmise) three and one-half years before that same date (February 1936). Can you tell me what prognosis as to cure there is? What amount of treatment should be taken if the attempt to eradicate the disease is given up? Is sexual intercourse harmful? An authoritative opinion on these points would be appreciated. The general health of the patients is fairly good. There are no clinical signs or symptoms of syphilis.

F. F. CARR-HARRIS, M.D., Timagami, Ontario.

ANSWER.—This inquiry emphasizes a misconception that is prevalent regarding the treatment of syphilis. The Wassermann reaction remains positive because of the patient's disease and not because of the treatment, even though it is given in insufficient amounts. In other words, in order to determine why the Wassermann and flocculation tests have remained positive in this man and woman it will be necessary to determine the status of the disease in each patient. This will necessitate a spinal fluid examination and a cardiovascular examination, as well as search for evidence of other types of visceral syphilis. If these examinations are completely negative it is probable that the diagnosis of latent syphilis is warranted in both patients. If, however, one or more of these examinations are positive, it is then possible to account for the serologic resistance.

If the diagnosis of latent syphilis is warranted, too much concern should not be manifested over the positive blood tests. If the nine months of treatment included twenty or more injections of arsphenamine and twice as many of a bismuth compound, this is the minimum amount that should be given and ten more injections of arsphenamine and twenty of a bismuth compound might well be administered. On the other hand, if more than the minimum has been given it would be advisable to give two courses of bismuth, fifteen injections each, a year for the next two years; reexaminations every six months for evidence of cardiovascular or visceral syphilis should be carried out. The majority of patients with latent syphilis observed for a period of ten years have become serologically negative. The important point is to make sure that the patients have latent syphilis before placing them on their own defensive mechanism.

The hazard in sexual intercourse to this couple lies in the possibility of pregnancy. If the woman has passed the childbearing age there is no contraindication to coitus, as they both have the disease. In view of the positive Kolmer and Kahn tests the woman must avoid pregnancy, and if she is averse to the use of contraceptives and has no pelvic disease that will prevent pregnancy, the risk of having a syphilitic child must be fully explained to the couple.

INFECTION FROM ANESTHETIC FACE MASK

To the Editor:—I am writing regarding the possibility of infection from gas and ether masks such as are used on ordinary commercial machines. As you know, these face pieces are made from celluloid or similar material and are connected to a rubber rebreathing bag by 3 to 4 feet of tubing, the latter having some eighty or ninety deep corrugations. Most places sterilize these by washing them in soap and water. For many years I have used Gwathmey's face mask, which is made of metal and connected to a tank by a small tube. The face mask and rebreathing bag can be sterilized by boiling.

CHARLES N. SPRATT, M.D., Minneapolis.

ANSWER.—The possibility of infection from masks such as are used on ordinary commercial gas and ether machines is relatively remote if the ordinary precautions are exercised. R. C. Coburn (Safety and Science in Nitrous Oxide Administration, *M. Rec.* **82**:798 [Nov.] 1912), in writing on administration of nitrous oxide, advocated "sterilization of all parts contaminated by breathing." Ordinarily, the instructions issued by the manufacturer of equipment to the user indicate the desirability of washing the mask and tubing with soap suds and hot water. It should be emphasized that it is highly desirable to keep on hand a sufficient amount of equipment so that, when one is suspicious that an unusual infection is present, the metal parts involved can be autoclaved, the rubber parts can be boiled, and the celluloid parts or those that cannot be boiled can be immersed in an antiseptic solution for a sufficient time to insure their sterilization. Solutions used are made with mercury bichloride or saponated solution of cresol, and some anesthetists use alcohol in proper dilutions or formaldehyde. Solutions should be well rinsed off, for rubber picks up cresol readily, as has been shown by R. P. Herwick and D. N. Treweek in their study of burns from an anesthesia mask sterilized in saponated solution of cresol (Burns from Anesthesia Mask Sterilized in Compound Solution of Cresol, THE JOURNAL, Feb. 11, 1933, p. 407). Caution must be exercised when this solution is used for sterilization of rubber parts that make contact with the skin.

Most modern gas machines are equipped with canisters for soda lime, which is an absorber for the carbon dioxide that is eliminated in the mixture. R. M. Waters wrote as follows (Carbon Dioxide Absorption from Anesthetic Mixtures, *California & West. Med.* **35**:342 [Nov.] 1931): "It has been suggested that the danger of cross infections was enhanced [by the canister of soda lime]. The mask is removed from the canister after each anesthesia and thoroughly washed with soap suds and hot water, rinsed in hot water and dried, unless a particularly dangerous case from the standpoint of infection has been handled, when further sterilizing procedures are instituted. The canister containing soda lime granules may be autoclaved with surgical dressings if necessary. The breathing bag may be washed in alcohol, boiled or otherwise sterilized. The possibility, however, of bacterial contamination was investigated by Dr. W. D. Stovall, director of the Wisconsin State Laboratory of Hygiene and visiting bacteriologist at the Wisconsin General Hospital. His reply follows: 'Complying with your request to carry out some bacteriological examinations to determine the probability of your anesthesia apparatus acting as an agent for conveying bacteria from one person to another, I have performed two sets of experiments. First, I poured a culture of staphylococcus into the canister containing soda lime. I then drew air, which was first washed through several washings of sterile distilled water, through the soda lime in the canister and through beef infusion glucose broth. This experiment I allowed to run two hours and at the end of that time the cultures were placed in the incubator for a period of a week. In no case did the culture show a growth of any kind. The other experiment was made by blowing air into a bottle containing a suspension of Bacillus prodigiosis. The air was blown through this suspension of bacteria so that it agitated it and made a fine spray in the bottle. Through a small glass tube which reached just through the cork of this bottle, I drew air by a process of suction through the soda lime of the canister and then through glucose beef infusion broth. These cultures were also incubated for one week. None of them showed any growth. While this is a limited number of experiments, I consider that the apparatus was submitted to a very severe test and I believe that, if the bacteria do not find their way through the canister into the media by these experiments, there is certainly no possibility of bacteria being transferred from one patient to another by con-

tamination of the lime in the canister.' In order to completely cover this situation, Guedel has made it a practice to place mask, canister and bag in a muslin container, autoclaving the container and contents after each anesthesia. From the standpoint of the 'cleanliness appeal' to the patient, we believe this a good practice, although entirely unnecessary for the complete avoidance of cross infections."

It is probable that, if these commonly applied principles of cleanliness and asepsis are employed, the ordinary patient can be safely anesthetized following the previous use of the equipment for anesthetization of another ordinary patient. Obviously, however, it would be best that a patient who is known to have a contagious respiratory infection should be the last one listed for operation on a given day. If this is not possible, following the use of the equipment for anesthetization of such an individual the metal, rubber and celluloid parts should be sterilized in the manner recommended in the opening paragraph. The soda lime in the canister should be discarded after use in each suggestive case.

A report of an address on ether pneumonia, given by J. M. Anders (Ether Pneumonia, *Brit. M. J.* **2**:6 (July 9, epitome of current medical literature, 1898) reads in part as follows: "The micro-organisms giving rise to the pneumonia were probably not usually obtained from the mask or inhaler used, but it was likely that partly dried secretions were loosened by the moisture in consequence of the increased secretion of the mucosa caused by the irritating effects of the ether, and that they were thus drawn into the lungs. In all the cases that had come under his own observation there was bronchitis, coryza or some other inflammatory condition of the respiratory tract before the administration of the anesthetic. Any such predisposing causes should, if possible, be removed first."

In certain special fields, special methods and special equipment may be necessary, and the equipment should be designed with the idea that it can be sterilized.

Contamination of apparatus, even though it is not used, is a remote possibility, but even this possibility can be minimized by care and proper covering of the apparatus and by its being placed in a room as clean as an operating room should be.

ACID ASH FOODS AND SALTY TASTE IN MOUTH

To the Editor:—A woman, aged 53, who has been considerably overweight for a number of years, is now reduced but not to a normal weight. She complains of a salty taste in her mouth, which is aggravated by postnasal dripping and is worse when she is nervous. I told her I thought it was due to a reduced alkalinity, because they are a family who eat a lot of acid forming foods: steaks, meats, white bread and butter.

M.D., Georgia.

ANSWER.—The acid forming and base forming qualities of foods have received considerable attention from some clinicians and a great deal of incoherent discussion by laymen.

In general, one should take at least enough alkaline ash to balance or neutralize the effect of the acid ash foods. The best health of the tissues depends on maintaining a slight preponderance of bases over acids in the body.

A general classification is given to show what foods in general yield the neutral, acid and alkaline ash:

Neutral Ash	*Acid Ash*	*Alkaline Ash*
Butter	Egg	Milk
Cream	Meat, fish and poultry	Nuts
Oil	Oyster	Fruits (except cranberries, plums, prunes and rhubarb)
Lard	Bread of all kinds	
Sugar	Cereals	
Cornstarch	Pastries	Vegetables (especially legumes and white potatoes)
Tapioca	Puddings	

Among the many ideas, fads and fancies about diet encountered by the physician is the "acid fad" in diet. Many patients worry and attribute their ills to what they believe to be acidosis resulting from the eating of acid foods. They feel that acid stomach, water brash and heartburn are all due to too much acid in the system from eating acid foods. They therefore eliminate many articles of food from their diet for fear they will produce acid in the body and by so doing they are apt to secure an inadequate diet.

There is a great variation in gastric acid secretion and often the secretions bear little relation to the average diet. After organic disease is excluded, the physician should realize that the acid secretions may be due to neurotic tendencies or to chronic nervous exhaustion and fatigue. Acid stomach, water brash and heartburn are not due to too much acid in the system from eating acid foods. The patient must be taught that taste does not tell whether a food is acid or alkaline. For example, eggs and meat form acid in the body, while orange, grapefruit and tomato are alkaline formers. If one includes in the diet a generous amount of vegetables, fruits and milk, one is sure to have a well balanced diet.

In general a heavily coated tongue will have impaired taste function, the taste bulbs being covered by the deposit. Swelling of the mucous membrane of the nose, with consequent obstruction, brings on an early perversion or absence of the sense of taste and smell. Irritating condiments also impair the sense of taste. A large group of taste reflex perversions are found in vagotonic persons, chiefly of gastric origin. Psychogenic taste modifications such as metallic tastes are frequently found in neuroses.

In view of the fact that the patient finds that her salty taste is aggravated by postnasal dripping and is worse when she is nervous, the nervous reaction that stimulates the postnasal dripping is more likely responsible rather than any relation of acid ash or alkaline ash foods.

PAIN AND CIRCULATORY DISTURBANCE IN FOOT

To the Editor:—A woman, aged 58, for the past two years has been having severe pains in one foot, the pains beginning in the great toe and spreading over the rest of the toes. The foot is cold and the pains last from six to twenty-four hours, being relieved only by hypodermic injections of morphine and atropine sulfate. Glyceryl trinitrate, contrast baths, barbital, acetylsalicylic acid and other preparations recommended for intermittent claudication give no relief. The basal metabolism, blood count, urinalysis and the heart and lungs are normal, the Wassermann reaction is negative, x-ray examination of the leg and foot shows no excessive calcification of the arteries, and the blood pressure is 150 systolic, 90 diastolic. She is wearing an orthopedic shoe. The attacks are getting more frequent and more severe and I am desirous of preventing these attacks. She is a seamstress at a hospital and runs an electric sewing machine all day. She is overweight but by dieting I have reduced her 20 pounds (9 Kg.) in three months. Please omit name.

M.D., New Jersey.

ANSWER.—The information contained in the inquiry is too inadequate to allow one to make a diagnosis. Desirable information is a more detailed history of the disease, a record of pulsations in the arteries of the legs, the effect of elevation and dependence on the color of the foot, and the presence or absence of sensory changes and changes in reflexes. Diabetes should be excluded by determination of the sugar in the blood and by studies of dextrose tolerance. It is quite apparent that the patient does not have intermittent claudication, since this condition is characterized by distress brought on by exercise and relieved by rest; however, she may have ischemic neuritis secondary to diminished blood supply resulting from arteriosclerosis obliterans. Such a diagnosis must be based on objective evidence of diminished blood supply, such as absence of pulsations in the dorsalis pedis, posterior tibial and popliteal arteries, abnormal pallor with elevation of the foot, abnormal rubor with dependence of it, and lowered temperature of the skin. A complete neurologic examination is advisable. Tabes dorsalis is to be considered. Provided no primary disease amenable to treatment to which the distress could be secondary is detectable, section, injection or crushing of the peripheral nerves (*Ann. Surg.* **98**:55 [July] 1933) or the intraspinal injection of alcohol (Greenhill, J. P., and Schmitz, H. E.: Intraspinal [Subarachnoid] Injection of Alcohol, THE JOURNAL, Aug. 10, 1935, p. 406), or roentgen treatment of the lumbosacral spine should be considered. Occasionally, such episodes of pain are characteristic of erythromelalgia (*Am. J. M. Sc.* **183**:468 [April] 1932), which is frequently associated with polycythemia.

DERMATITIS FROM HOSIERY DYES

To the Editor:—What is the latest treatment or the most common treatment for acute and chronic dermatitis caused by dye powder (used to dye hosiery)? Also that caused by silk and wool? I have had good results with ultraviolet when the patient will stay home for two or three weeks but some are unable to give up their work, owing to financial difficulties. What would be your procedure in these cases?

M.D., Pennsylvania.

ANSWER.—The treatment of external irritant dermatitis follows the principles of the treatment of dermatoses in general. However, the first essential is to remove the causal agent that is exciting the cutaneous reaction. The activities and environment of the patient in addition to his work may reveal contributory sources of irritation. In the event that it is impossible to prevent further contact with an irritant in the patient's work, the patient must be protected. Those who are mildly affected can continue work by protection of the parts by long sleeves and gloves and a protective ointment. Desensitization as a means of treatment has not met with success in the case of chemical (dye powder) dermatitis. Desensitization to silk and to wool by subcutaneous injections can be attempted. Those cases exhibiting an acute dermatitis are best removed from their work and the source of irritation.

The local treatment of the dermatitis during the acute stage should consist of wet dressings of saturated solution of boric acid, or solution of aluminum subacetate, 1 part diluted with from 10 to 16 parts of water. Calamine lotion compresses, to which phenol may be added if there is much itching, are also effective. The use of boric acid ointment or 2 per cent ichthammol (ichthyol) in zinc oxide ointment may be applied at night. In the chronic cases one should rule out any general factors that may contribute to the chronicity, and the use of a 3 to 6 per cent crude coal tar ointment in zinc paste or a 3 to 10 per cent oil of cade ointment, starting with the milder strengths and cautiously increasing the strength, is effective. Fractional x-ray treatment, 75 roentgens once a week in competent hands for from six to eight doses, is a valuable adjunct to treatment.

PROPHYLAXIS OF RABIES IN DOGS

To the Editor:—At a local medical society meeting recently there was considerable discussion over the single prophylactic injection of dogs for rabies. Can a family feel secure their pet dog will be immune from rabies after the single injection of antirabies serum as a prophylactic? Does it take several preventive doses to protect satisfactorily against development of hydrophobia in the dog? Pardon the question about dogs, but dogs and people are usual inhabitants of the same house; in fact, I have one myself; and children playing with these pets may easily contract the disease innocently from their own pet if the prophylactic doses we have been accustomed to use from the manufacturers are not really protective. A few dogs have been reported as developing rabies following the prophylactic injection of antirabies serum, which was the reason for the claim being fostered. In such cases is the reason likely that the rabies infection was massive or close to the brain (the entrance of the virus) or insufficient time for immunity had not elapsed between prophylactic administration and the rabies bite to develop the necessary immunity?

E. H. COACHMAN, M.D., Muskogee, Okla.

ANSWER.—Robert Olesen (*Pub. Health Rep.* **50:** 1087 [Aug. 16] 1935) reviewed the available data on the effectiveness of vaccination against canine rabies. He states with reference to canine antirabic vaccination: "Unfortunately evidence concerning the value of available vaccines is conflicting, indecisive and unsatisfactory. The evidence seems to indicate strongly that vaccination against rabies is in the experimental stage and that, despite the claims of a few enthusiastic advocates, reliance should not at present be placed upon this measure."

However, it is the consensus that, when antirabic vaccination in dogs is successful, the resulting immunity has a duration of about one year, after which vaccination should be repeated.

Immunity that is the result of antirabic vaccination requires time for its development. In man it is reported as appearing about two weeks following the Pasteur treatment. It is reasonable to believe, therefore, that during this period of the development of immunity the vaccinated dog may still be susceptible to rabies and may contract the disease if exposed at this time to the virus in massive doses or by head bites.

SUDDEN DEATH DURING MENSTRUATION

To the Editor:—A white woman, aged 24, apparently in good health, helped her husband pile some brush, and sawed wood all day. She had been menstruating for three days previously. After doing her usual evening work she sat down and attempted to lift her only child, aged 2½ years, but suddenly dropped over dead. There is no history of hypertension, rheumatic fever, syphilis or other symptoms of heart disease. I was called to see the patient, arriving at the home about twenty minutes after death. The body showed nothing in particular that would explain the sudden death. No autopsy was done. Would you kindly render your opinion as to the cause of death? I had never seen the patient previously and only a brief history was obtained from the sorrow-stricken family. Do you think the fact that the patient was menstruating is of any significance in this case?

M.D., North Carolina.

ANSWER.—It is not at all likely that menstruation was of any significance in the death of the patient. The cause of a sudden death like this is to be found first and most probably in the heart.

APPENDIX AND PERISTALSIS OF COLON

To the Editor:—Please inform me if the appendix is the initiator of peristalsis of the colon. What are the latest theories as to what causes the peristalsis in the colon?

J. MARSH FRÈRE, M.D., Chattanooga, Tenn.

ANSWER.—There is at present no evidence that the appendix in any way governs the movements of the colon. On Alvarez's "gradient theory" of intestinal motility one might look for such motor influence from the appendix, but removal of the appendix in man and other animals reveals no such influence.

The colon motility, like the rest of the intestine, is influenced by local and by extrinsic factors. Among the latter are the extrinsic nerves to the colonic musculature and the hypogastric and the sacral autonomics. It is probably mainly through these nerves that spastic states and the so-called gastrocolonic reflex (increased colonic motility and tendency to defecation after eating a full meal) take place. The local factors are distention of the colon by its content (indigestible parts of the food, gas, enemas) and irritation of nerve endings of the mucosa. The latter appears to act both through the extrinsic nerves of the colon and through Auerbach's plexus in the wall of the colon.

FIRST USE OF TERM "LA GRIPPE"

To the Editor:—In the current novel "Gone with the Wind" I find the term "la grippe" used in describing an ailment. The time portrayed in the book is Civil War time, 1860-1865. It is my impression that the term "la grippe" was not used in United States medical circles until in the early 1890's, when an influx of it swept over the United States, supposedly imported from France. Will you kindly give me your ideas on this subject? We had in the United States what was once known as "Tyler's grip," but I believe this was before the Civil War.

W. G. MCGLUMPHY, D.D.S., Moundsville, W. Va.

ANSWER.—In France "la grippe" has been used since the epidemic of 1743 (Townsend, J. G.: A Review of the Literature on Influenza and the Common Cold, supplement 48 to *Public Health Reports*, 1924). The term was used in the United States even before the Civil War, as shown by the following references:

McCall, A.: Some Account of the Epidemic "Grippe," *Boston M. & S. J.* **31:** 254, 1844-1845.

Stewart, F. C.: An Account of the Epidemic Influenza Prevailing at Paris, Known There Under the Name of La Grippe, *M. Examiner* (Philadelphia) **1:** 353, 1842.

ALLERGY TO HAM

To the Editor:—Recently I have had several cases of allergy which have been traced to eating ham. I was wondering whether you could tell me how the hams are cured. Is a chemical used in curing the ham? If so, what is the chemical?

ROBERT N. HEDGES, M.D., Chicago.

ANSWER.—The substances used in the curing of ham are salt, sodium nitrate, sodium nitrite, sugar, and wood smoke. Only special hams, easily recognizable by the color and specific odor, as the Italian ham, have spices. These are various peppers and occasionally paprika. None of the substances used in the curing of ordinary ham have been found to be the cause of any allergic symptoms, although Duke has reported a case of asthma due to wood smoke. This, however, could not possibly apply to the concentrations of smoke present in cured ham.

USE OF PHENOL AND GLYCERIN IN OTITIS MEDIA

To the Editor:—What is considered the best management of the early stage of acute otitis media prior to suppuration? Otologists seem to object to the local use of phenol and glycerin, glycerin, or hot irrigations to the canal. What nasal treatment is advised

M.D., New York.

ANSWER.—Otologists do not object to the local use of phenol and glycerin or plain glycerin in the early stages of acute otitis media. Intended chiefly for their anesthetic and perhaps antiseptic qualities or to deplete the middle ear, these agents may be used in the first twenty-four to forty-eight hours of an acute otitis; if the symptoms are not improved by the end of that time then the logical thing to do is a paracentesis of the drum membrane. Closing one's eyes to symptoms and placing undue reliance on the efficacy of local anesthetics is not good otologic practice. The prolonged use of phenol furthermore leads to a desquamation of the epithelium of the external auditory canal and coats the drum membrane with a white débris. Landmarks thereby become so lost that decision as to future therapy becomes difficult.

BURNS OF EYE

To the Editor:—What is the best acid substance for neutralizing an alkali burn of the eye? The best alkali for neutralizing an acid burn of the eye?

M.D., Massachusetts.

ANSWER.—The best substance for primary use in either an alkali or acid burn of the eye is ordinary water in large quantities. The purpose is to dilute the damaging chemical as much as possible and to flush all excess from the conjunctival sac. As a rule, when an eye is burned with a chemical substance no neutralizing solution is at hand for immediate use. But if a neutralizer were available it would not be of much more use than ordinary tap water, for any acid or alkali sufficiently concentrated to neutralize an alkali or acid substance in the conjunctival sac would do as much damage as the original injuring agent. The damage is done within a few seconds and later neutralizing agents are of but little value.

However, in the case of acid burns, a 3 to 5 per cent solution of sodium bicarbonate is as efficacious as anything else, while in the case of an alkali burn 4 per cent solution of boric acid suffices. The quantity and rapidity of use is of far greater importance than the quality.

KAHN TEST OF CORD BLOOD

To the Editor:—Kindly inform whether or not in your opinion the Kahn test using cord blood is satisfactory. I shall appreciate a reply, for I am doing the Kahn test as a routine in all obstetric cases, using cord blood. If it is not the correct procedure, I should like to make a change.

M. G. SHARP, Ottawa, Ill.

ANSWER.—The question of the dependability of the Kahn test carried out with cord blood has been discussed in these columns previously (THE JOURNAL, March 25, 1933, p. 991). Judged from published reports, the Kahn test is as reliable with cord blood as with non-cord blood. The belief that tests for syphilis do not give dependable results with cord blood is based on the fact that serum from such blood shows some tendency toward nonspecific fixation of complement (anticomplementary action) in complement fixation tests. But the Kahn test does not employ complement in its set up and is apparently not influenced by anticomplementary properties of serum.

PARALYSIS AGITANS

To the Editor:—Will you please advise me what the most recent opinion is as to the choice between atropine, stramonium and scopolamine in the treatment of cases of paralysis agitans. I have a patient who seems to be rather sensitive to atropine, although it does prove rather effective in controlling the tremors.

JOHN THOMAS BOWEN, M.D., Clearwater, Fla.

ANSWER.—All three of these drugs have been used with some success in the treatment of paralysis agitans and it may be that one of them might agree better with a certain patient than another one, so that treatment with the different drugs in succession is decidedly desirable. It is the side-effects, which are similar in all of these drugs, that limit their practical utility; but they may, in a certain case, appear later with one of them rather than with the other.

TERPIN HYDRATE IN ELIXIR

To the Editor:—In THE JOURNAL, Sept. 14, 1935, page 879, Dr. Fantus gives a prescription as follows:

℞ Terpin Hydrate ..... 5.0 Gm.
Iso-alcoholic elixir ..... 60.0 cc.
M. Label: One teaspoonful in water every three hours.

My druggist reports that he cannot dissolve the terpin hydrate in this amount of elixir. He seems to be correct when I note that the proportions are 1:12 and that terpin hydrate is soluble in 95 per cent alcohol only in the proportions 1:13. Is this prescription in error or does my druggist have a poor elixir preparation? Please omit name.

M.D., Ohio.

ANSWER.—High-alcoholic elixir (N. F.) will dissolve the indicated quantity of terpin hydrate on prolonged shaking or on standing over night.

PRISM EXERCISING OF EYE FOR SQUINT

To the Editor:—An opinion was expressed to me by a physician that there was some danger or possible damage that could result from exercising the eyes with prisms, as in squint cases. What is known concerning such danger?

M.D., North Carolina.

ANSWER.—If the muscle imbalance is properly diagnosed and the prism exercises are properly done and the condition is properly checked at adequate intervals, there is no possibility of danger or damage.

PUBERTY MASTITIS

To the Editor:—I wish to inquire as to the significance, in a boy aged 13½ years, of bilateral indurated and slightly tender disks underlying the nipples and areolae. My experience with boys of this age is limited. Were this child a girl I should be sure that this was a normal manifestation of puberal development, and I think that it probably is so in this case also. Is this condition common in boys?

M.D., California.

ANSWER.—The so-called puberty mastitis or mastitis adolescentium occurs in boys as well as in girls. It is probably more common in boys than is generally assumed, and it may become so marked as to constitute a true fibrous tumor. It may involve one or both breasts. It regresses spontaneously in most cases after several weeks or months. The term puberty mastitis is somewhat misleading, since in typical cases the process is not inflammatory.

POSTMORTEM LIVIDITY

To the Editor:—Will you please give me some authentic information on the time the lividity of the skin and subcutaneous tissue lasts after death from sudden and complete obstruction of the upper air passages. What is the cause of the lividity and the cause of death in such a case? I understand there has been some experimental work done on this subject in recent years.

ALEXANDER GALBRAITH, M.D., Oakland, Calif.

ANSWER.—The lividity would persist until obscured by decomposition and other postmortem changes. The lividity is due to venous obstruction from the interference with the respiration, which in turn is the cause of death in such cases. This is not to be confused with ordinary postmortem lividity.

BIOLOGIC PREPARATIONS IN FURUNCULOSIS

To the Editor:—May I have your comments on the relative merits of stock vaccines, autogenous vaccine and staphylococcus toxoid in the treatment and prevention of furunculosis?

M.D., Massachusetts.

ANSWER.—A potent, well prepared autogenous vaccine is more effective in the treatment of furunculosis than either toxoid or a stock vaccine. Staphylococcus toxoid exhibits a slightly higher degree of effectivity in selected cases than stock vaccine.

INTRAVENOUS USE OF CALCIUM COMPOUNDS IN DIGITALIZED PATIENT CONTRAINDICATED

To the Editor:—Is calcium, intravenously administered, contraindicated in a patient who is partially or wholly digitalized? Please omit name.

M.D., Texas.

ANSWER.—There is a decided danger from intravenous injection of calcium salts in a digitalized patient. Several deaths are on record from this cause.

GOLDSTEIN'S HEMATEMESIS, GASTRORRHAGIA AND GASTROSTAXIS

To the Editor:—Gastric bleeding (gastrorrhagia) discussed in THE JOURNAL, Dec. 19, 1936, page 2072, suggests that this condition deserves a special name and states that no description of it appears to have been published. The use of moccasin snake venom injections also is mentioned as having been used by Watkins of the Mayo Clinic with excellent results.

Reports and descriptions of this gastric hemorrhagic condition have been reported, with "special names," such as "gastrostaxis" (White, W. H.: Lancet **1**: 416, 1912), "telangiectatic dysplasia of the stomach with hemorrhages" or "Goldstein's Hematemesis" (*Arch. Int. Med.* **48**: 836-865 [Nov., part 1] 1931; *Arch. Dermat. & Syph.* **26**: 282-308 [Aug.] 1932; *Brit. M. J.* **1**: 1275 [June 20] 1936; L. N. Boston [1930]; Ersner [1931]; Schoen [1930]; Ullmann [1896], and others).

I suggest that these cases are due to dysplasia and telangiectatic bleeding when no other evidence is found, such as abdominal Hodgkin's disease, hemorrhagic blood dyscrasias, leukemias, severe anemias, uremic states, malignancy, polyposis, hepatic cirrhosis or chemical poisoning, vicarious menstruation (substitutional extragenital bleeding and supplementary menses), and gastric allergy. Russell viper venom in solution has been used by mouth for gastric bleeding.

HYMAN I. GOLDSTEIN, M.D., Camden, N. J.

BLOOD-TINGED SEMEN

To the Editor:—In Queries and Minor Notes in THE JOURNAL, January 30, page 416, is a question concerning blood-tinged semen. Having seen a similar case, I would suggest a possible explanation. The patient referred to was a married farmer, aged 51, who first noticed the appearance of bloody semen in 1934; it varied from reddish brown to light red. Microscopic and chemical examination confirmed the diagnosis of bloody semen. No pathologic condition was found on endoscopic examination. The condition lessened and stopped within nine months. He remains well. Treatment consisted of weekly prostatic massage and instillations of silver nitrate and interdiction of his habit of coitus interruptus, which he had practiced throughout his entire married life. There is reason to believe that withdrawal was the prime cause of the condition, resulting in chronic congestion in the sex organs, probably localized in the vesicles. There seems no reason why congestion of the posterior urethra and prostate could not occur on this basis.

HAROLD J. HARRIS, M.D., New York.

OTITIS MEDIA AND EPILEPSY

To the Editor:—In THE JOURNAL, January 30, page 414, there is a question from a physician concerning a patient who has epilepsy with a chronic otitis media. In answer the statement is made that the otitis described is not the cause of the convulsions. There is considerable doubt in my mind whether the question can be answered with such a categorical negative. In the Neurological Unit of the Boston City Hospital we have had three patients with epilepsy and chronic otitis in whom the attacks have ceased following radical operation on the mastoid. While I am aware this is only a post hoc argument, I think it does create a presumption.

TRACY J. PUTNAM, M.D., Boston.

Council on Medical Education and Hospitals

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Thirty-Third Annual Meeting, held in Chicago, Feb. 15 and 16, 1937

DR. RAY LYMAN WILBUR, Stanford University, Calif., in the Chair

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

FEBRUARY 15—MORNING

Leadership in Medical Education

DR. RAY LYMAN WILBUR, Stanford University, Calif.: This article appeared in full in THE JOURNAL, March 6, page 771.

The Regulation of the Professions in the Public Interest

WILLIAM E. WICKENDEN, B.S., Cleveland: The protection of public welfare in matters of professional service involves at least three major considerations—keeping incompetent or unscrupulous men out, getting a sufficient quota of men of high character and ability in, and maintaining the economic and social conditions of practice essential to an adequate and disinterested service of the public. By origin and tradition, professions are self-regulating bodies. In general, each profession has built up its own status, determined its own conditions of admission, established its own code of ethics, and fixed its own system of compensation for services. The public has been tolerant toward professional autonomy until its own interests have become endangered. When public regulation has been imposed, the intent has been not to take the control of a profession out of the hands of its members but merely to establish such rules of control as are deemed necessary to public interest.

The occasion for such regulation and its extent differ significantly as one passes from those professions which deal with personal emergencies to those which touch social interest mainly in the area of corporate activities. A personal emergency of health or safety, or a problem of mental or psychic adjustment calls for a type of knowledge too esoteric for the layman to judge competently for himself. These fields have always been beset by quacks, charlatans and miracle workers, and even intelligent people when faced by extreme emergencies show an almost uncontrollable tendency to throw sober science to the winds and grasp at fabulous nostrums. The average man, facing the power of the law, is usually reduced to an abject helplessness which leaves him open to shameless extortion.

To leave the public exposed to quackery and exploitation under these circumstances would violate every consideration of humanity and public interest. In commercial transactions the buyer and the seller are presumed to meet on equal terms, with the buyer free to decline the terms offered. The man with acute appendicitis does not enjoy these advantages. The least the public can do for the distressed individual is to guarantee that whatever professional servant he may engage has at least certain minimum standards of training, experience and character, and to impose on the practitioner that degree of accountability for his conduct and performance which public safety demands.

Where the interests and responsibilities of one profession run closely parallel to or overlap those of another, some delimitation of fields by statute has often been found to be necessary. This usually takes the form of restrictions on the right to sign and file plans for approval by the authorities charged with the supervision of building operations in the interest of public safety. What regulation through licensure and statutory definition of powers in the interest of public safety accomplishes directly is simply an imposition on the profession of minimum standards of admission, in terms of training, experience and social accountability. The immediate aim is to exclude incompetents, pretenders and crooks. Indirectly, licensure operates to regulate competition within the profession and to invest it with a greater or less degree of prestige in the public mind.

The restriction of admissions to certain professions is clearly in the public interest, while in others it is much more questionable. This point may be exemplified by contrasts in status and function between the physician and the engineer. Medicine, as every one knows, is one of the group of professions which serve individuals in personal emergencies. The incidence of these emergencies in a population living on a given social level is well known and determines the number of persons a single physician can serve effectively. Inevitable inequalities in distribution and service must be allowed for, but an optimum quota or ratio of physicians to population is easy to establish. An increase of physicians beyond this quota does not insure superior service nor does it contribute to medical progress; on the contrary, it merely multiplies temptations to exploit human ignorance and frailty on the plea that surplus practitioners must live, somehow. Competition may be the life of trade but it is likely to be the death of good medical care. Furthermore, medicine is a sharply bounded occupation from which few men are called by choice or circumstance to other careers; nor are there easy gradations of authority to keep a career open to the self trained. Every French private, according to Napoleon, carried a marshal's baton in his knapsack, but no hospital orderly is permitted the illusion that he may somehow rise to the rank of chief surgeon.

Engineers seldom serve individuals. They serve society through its corporate agencies and in its constructive enterprises. No statistician can state the incidence of these constructive needs; their number is not inherently limited, nor does engineering progress tend to restrict or eliminate them as medical progress aims to banish disease. Rather, all engineering progress tends to widen the domain of engineering. No one can set an optimum quota of engineers for a given population, nor is it clear that a sharp restriction of their numbers is necessary for public welfare and safety. To have fewer engineers does not necessarily imply better engineers, so long as their work lies principally in areas of competitive enterprise. Technical progress in engineering apparently is little affected by overcrowding except as the horse sense of one generation is unable to compete successfully with the science of the next. To create and protect a monopoly for the horse sense generation might have been in their personal interest but not in the interest of scientific advance. The profession of medicine is by law and tradition a caste; sharp, closed boundaries separate it from nearly all other groups that touch on its functions such as pharmacists, laboratory technicians, nurses and opticians. The profession of engineering is not a caste but a vaguely bounded nucleus within a large body of technical workers and officers of industry. The gradations of function between highly technical specialists at one extreme and almost pure executives at the other are imperceptible. Constant interchange between these functions within the larger group are going on. Close these free paths of interchange between technical, executive, commercial and producing groups, and the engineering profession would quickly sterilize itself.

A wide range of professional patterns exists, and too much regimentation under the law, aiming to impose a common pattern, would be stultifying in its effect. Licensure is effective in setting minimum qualifications for admission only, and in strengthening the police powers which may be invoked in cases of malfeasance. In itself it offers no positive assurance that men of high caliber and devoted spirit will be drawn into any field of professional service. In itself it invests a profession with only a modicum of public prestige and esteem. The state of New York issues professional licenses in the fields of medicine, podiatry, dentistry, pharmacy, veterinary medicine, nursing, accountancy, optometry, shorthand reporting, architecture, engineering and public school teaching—a range of professions varying so widely in public prestige, as to make it clear that licensure, *ipso facto,* is in no sense a key to esteem.

Public regulation has done little to lessen or to alter the inner obligations of our professional groups. We are still responsible for our standards of education and of personnel selection. These standards operate at the doors of our professional schools even more significantly than in the examining rooms of the licensing boards. Our part is to get the right

men in; the board can merely keep the wrong man out. As professions, we are still responsible for the advancement of the knowledge and skill we have received as a priceless patrimony from our forebears. No legal status can possibly affect our groups in public esteem and prestige as much as do our contributions to knowledge and public well being. The cultivation of professional spirit, the nurture of the ideals of disinterested service, the preservation of high codes of honor and ethics, still rest on the profession itself. Statutes and regulations, licensure and legal status are things of the letter, needful for public protection but not in themselves services of professional vitality and life.

The Price of Professional Liberty

GUY STANTON FORD, Ph.D., Minneapolis: How does a professional group come to be set aside and trusted with the regulation of its own profession and of its relation to society in general? It is not necessary to go back to the medieval guilds and corporations that survive in a shadowy form in the ordinances of our universities and colleges and learned professions and much more in their spirit and privileges. What we see today is that a learned profession has characteristics that set it apart and are the basis of its claim to a preferred position. The first index is that it performs some special, clearly marked and socially significant function that is not and cannot be performed by any other group or by the generality of mankind. Second, that it is a function that requires peculiar skill and definite preparation. This preparation consists always of training of a professional character, which in turn is based on a general education and is often interrelated with a period of apprenticeship. Third, that this professional group is effective in limiting its numbers, and fourth, that it has control over its membership by codes and disciplinary measures that are enforced in a way evident to the public. I call special attention to this last phrase, "codes and disciplinary measures that are enforced in a way evident to the public," because it is one of the most important from the standpoint of public confidence and one of the most neglected by every learned profession.

These criteria which I have borrowed from Professor Taeusch's volume on Professional and Business Ethics are useful. There is, however, another and more fundamental test, it seems to me. It is based on the ideals and purposes of the group or profession. If the service of the group organizations are on the level of self interest and economic and material advantage to its members, it is not and cannot be a learned profession in any proper sense. Each group, whatever its qualifications for membership, can in the long run maintain its independence and liberty of self direction only at the price of showing constantly its freedom from selfish group interests. The wise response of any profession to social change, its loyalty to the general welfare, the clarity with which it makes its professional codes comprehensible to the public which it claims to serve through and by such codes constitute the best bulwark for its cherished historic liberties.

The two great historic learned professions of teaching and preaching fail to meet at least three counts of the four mentioned; namely, there is no limitation of the number of teachers or preachers either by group control or by social prescription, nor is there more than a shadow of a uniform national standard in professional education. No national organization of either is inclusive or effective enough to set standards of educational and professional training or enforce a code of any kind. Progress toward real professional status for teachers will be slow forever. Yet they may well be the two groups who most unselfishly devote themselves by their lights, however feeble, to the service of their fellow men. My purpose is not to indict any professional group but to remind all of them that the price of their privileges and liberties as a profession lies in recognition, readjustment and thoughtful reorientation to meet the new responsibilities created by the fundamental social changes.

The medical profession is the most powerful and coherent of any of the professional groups. With its definite professional preparation and objectives, the considerable background of general education that is now prescribed and the code that it professes, it comes nearer meeting the technical definition of a profession than any other major profession. This organization and its policies and attitudes more nearly dominate the thinking of the medical profession than does the bar association that of the lawyers. It may not be able to exclude sectarian practitioners from the healing art or discipline all the malpractitioners who flaunt a medical degree, but if it chooses it can outlaw the most distinguished member of the profession if his views contravene the accepted mores of the group. It can crush or encourage experimentation in medical education and debar its members from professional association with any one having a specific healing skill or knowledge unless the possessor has also a medical degree. In the medical profession the thoughtful citizen recognizes a group that can and does bring science into the service of the noble art of healing and alleviation.

The gratitude of the patient and of the family and friends that stand helpless but hopeful in the presence of the physician surround the profession with an aura that colors no other profession so constantly and so subtly. All these professional and personal factors make a picture that explains why the medical profession is in the perilous position of having greater liberties and privileges than any other similar group.

It is truly a perilous position because there is peril in great privilege and great responsibility. Any group in such a focal position requires a leadership and a program fully aware of all the new forces and interests and insistent demands of a dynamic society. It is important for the medical profession to know that during and since the nineteenth century the world has been revolutionized by science and technology, the development of means of communication, the concentration of population in cities, the rise of concentrated wealth and the prevalence of distributed want and poverty. More important even than all this for medicine are the changes in social attitudes. The old unrestrained individualism is gone. We have suddenly become conscious that as a nation our youth is behind us and that we are in middle age if not beyond it and that we are repeating the history of Europe without learning anything from it. In a land dedicated to democracy we are dimly aware of classes and many are shocked into blind reaction by the simple reassertion of the idea that our government was founded not only by the people but for them.

This is a new world. In medical education we can rightly boast of progress in the application of the physical and biologic sciences. But medicine is a social science dealing with one of society's greatest needs, public and private health, and the line between these two is often faint and wavering. It is a profession of such social importance that it cannot escape the impact of social change. In our modern integrated society every trade and every profession is "affected with the public interest," and none more so than the hitherto highly individualistic medical profession.

What are we as medical educators and leaders doing about it? What we are doing is next to nothing. Some years ago I analyzed typical medical student programs from entrance into high school until they were given a medical degree. I found scarcely a trace of history or any of the social sciences, i. e., political science, economics and sociology, nothing that would help to give them any understanding or interest in the changing world that would condition their whole life. It was a perfect preparation for an unsocial citizen and professional man.

There may be some who think we cover all necessary features of a doctor's social training when we administer the Hippocratic oath and hand him a little pamphlet labeled Principles of Medical Ethics distributed with the compliments of the American Medical Association. Its basis is Perceval's code of 1803 formulated in a time of cut throat rivalry in England, restated in New York in 1848 at the time of an equally bitter fight against homeopaths and eclectics and little changed in the editions issued by this association since 1903. I am concerned that the young doctors, while retaining all the fine traditions of the profession, shall be sent forth with understanding and open minds and a new conception of service and of their paramount obligation to make more universal the scientific stores of knowledge which fail of application today in such wide areas of public and private health. Need I list as indications of society's demand for this wider application all the measures it is taking from workman's compensation, social insurance, social security and housing, to the more evident public hospitals, public dis-

pensaries, asylums, public school nurses, county nurses, student health services? In all these, many of you have been leaders. They are evidences of the growing concern of the public with matters of health. Medicine as a profession has said that it would welcome the day when matters of health assumed the same universal interest hitherto held by education alone. That is a great ideal. Its realization may be far in the future but mankind, like a great army, is on the march toward it.

The Medical School Survey

DR. HERMAN G. WEISKOTTEN, Syracuse, N. Y.: This article appeared in full in THE JOURNAL, March 27, page 1026.

FEBRUARY 15—AFTERNOON

DR. REGINALD FITZ, Boston, in the Chair

Report of the Survey to Individual Schools

DR. WILLIAM D. CUTTER, Chicago: In connection with our studies of the medical schools of the past two years, the Council on Medical Education and Hospitals has had in almost every case a request from the administrative officers of the school for a report of the conclusions of the Council. It would have been our desire to give a report immediately after the inspection but it was impossible in so short a time to prepare a report. We were obliged to wait until the visitation of the schools had been completed before putting into form our conclusions so that they might be returned to the faculties and officers of the schools included in the survey for their benefit and for their information. I will show on the screen a series of pattern maps or graphs covering a number of items of the organization and administration of the institutions of learning. Instead of representing on the graphs the value of any one of these features as determined by a score, there is merely a comparison of one institution with other institutions. These maps are confidential. They will be sent to the executive officers of each one of the schools, showing the conclusions of the Council with respect to that particular institution. They will not be seen by any one else. They merely represent for the benefit of that institution the observations of the Council with respect to these various activities, so that no one else is ever going to see the pattern map that is sent to you except the people to whom you are inclined to show it. It is a purely confidential expression of the conclusions of the Council with respect to the particular school. The purpose in sending these maps is merely to give you the information which the Council has gleaned from study of the various institutions that were included in the survey. No action of the Council is based on this map, and no action will be based on it. It is intended solely for your information and for your guidance.

SYMPOSIUM ON CANCER

The Biology of Cancer

C. C. LITTLE, Sc.D., Bar Harbor, Maine: I should like to bring to attention what might be called the genetic point of view as a basic principle in cancer research. There is no species of domesticated animal in which the genetics is so thoroughly misunderstood as in the case of man, and that situation is likely to continue far beyond our lifetime. The chemist would be helpless in his attempt to analyze unknown material if he didn't have known chemical agents on the shelves of his laboratory to which he could turn as assistance in analyzing the unknown. The biologist, in the past fifteen years, has been given the tools by which he can approximate that result. I believe that by the use of genetics, it has been possible very definitely to measure the variations which occur in the tumor and it has been possible to measure the degree of differentiation possessed by the tumor. It was possible as early as 1922 to show in work Dr. Strong did with me that two tumors which looked exactly alike under the microscope could give very different physiologic effects and very different genetic ratios. We sent slides to two pathologists and they said they were the same tumors, but we obtained different genetic results after inoculating the tumors. This gave a preliminary and unsatisfactory result, but it shows the relationship of tumors not detected by any physiologic method of analysis.

I have been talking about inoculated tumors and the way in which biologic principles can be used to bring them into the field of research. The same principle of pure strains holds good in spontaneous tumors. It has been known for years that genetics played an extremely important part in determining whether a given family of animals would or would not develop tumors. The factor of age in connection with spontaneous tumor incidence is interesting. It is known from the statistical material available on human beings that there is a marked difference in age incidence of such types of tumors as those of the female reproductive type, those of the digestive system and those of the skin. It is evident that those types of tumors are biologically different from one another. Although they may have something in common, there are enough different factors to make the mean age of incidence of tumors of the breast and of the uterus different from the tumors of the digestive tract and those of the type of skin tumors which increase in relative incidence up to the duration of human life.

It seems to me that we have a suggsetive line of research that will drive us outside of the chromosomes and possibly into the cytoplasm of the egg to find out whether there is difference in sensitivity of this cytoplasm to various internal stimulants which may lie at the base of cancer.

When carcinogenic substances are used in minute quantities that approximate the degree that one might expect to find them present in the body, there are differences that tend to show up in the reaction of the animal to the carcinogenic agent. We do not know the limits to which one may expect these stimulants to occur naturally in the body, but that there is a genetic difference in human material and in mice is undoubted. That this difference in the state of nature is an important difference in determining whether the individual will or will not have a cancer seems to be undoubted. The cancerous change appears to be one to which almost any tissue can be pushed if maltreated and irritated for a long enough period. Sometimes, however, there are natural limits of irritation in the life of the normal mammal.

In experimental medicine today it is largely a deliberate handicap if an institution chooses to use material that is not genetically controlled and not as uniform as it is possible to make it. It is just as antiquated to use mixed material concerning the ancestry of which one knows nothing as it would be to revert to the old methods of surgery.

The Pathology of Cancer

DR. FRANCIS CARTER WOOD, New York: There have been vast changes in our ideas of the causes and nature of cancer in the hundred years since Johannes Müller first studied the crude teasings and scrapings of neoplasms. We are no longer intensely interested in morphology, except as a means of practical diagnosis. Probably all types of human cancer have been seen and described. The only thing left is to codify our knowledge, agree on our nomenclature, and publish the data in convenient form. As a beginning, the International Union Against Cancer has authorized me to prepare a diagnostic atlas of tumors illustrating all the known types of cancer and, so far as possible, their morphologic variants. Opposite the picture of each type will be the synonyms in several languages, which may be subject to change from time to time, though the broad outlines of classification are fairly well established.

The present view is that biology is more important than morphology. The remaining importance of morphology is to be able to inform the surgeon or the radiotherapist what the classified experience of his predecessors has been concerning the life history of neoplasms bearing a certain morphology. I have made certain checks on standard sets of sections, which show that no two pathologists will make exactly the same classification. Unfortunately, large statistics of carefully studied tumors which have been grouped by the same individual are still lacking.

Grouping, on the whole, does not tell the fate of the individual who possesses a tumor but rather the fate of a group of individuals with the same kind of a tumor. It is like insurance statistics. Life tables do not prophesy what will occur to the individual but only to large numbers, and even under these circumstances an epidemic may completely upset the expectation of life of a definite group. These deficiencies are well recognized and attempts have been made by many workers in the field to combine the morphology of the tumor with its position in a

given organ, its extension to nodes and other clinical characteristics into a more useful prophecy as to the fate of the patient. It is of the greatest importance that more of such thoroughly observed material be collected and studied, using all the characteristics on which to base a prognosis.

Morphology has been used to help the radiologists in determining the probable sensitivity of a tumor to radiation. Morphology does not necessarily run parallel with tumor susceptibility, even in neoplasms of exactly the same morphology. The reason for this is that no two tumors, even of the same morphology, necessarily spring from a cell with exactly the same biologic qualities. Certain broad lines are now available. The radiologic differences between the behavior of a basal cell tumor of the skin, its close relative the squamous cell type, and the mixtures of the two form a fairly reliable guide. It is known, for example, that the lymphoblastic group are sensitive to radiation, though such sensitivity is not necessarily correlated with curability, for it is far easier to cure with radiation a squamous cell carcinoma, because of its tendency to remain local, than to obtain one of the rare cures of the sensitive lymphosarcoma. The reticulum cell group of connective tissue tumors are also now known to be sensitive, but they also have the habit of extending rapidly while the primary tumor may disappear under treatment. The undifferentiated types, while more malignant from a surgical standpoint, are usually more sensitive from the radiation aspect, but in neither case does any large body of information exist on carefully observed material. It is well known that the glandular forms of carcinoma are resistant to radiation, those, for example, of the lung and gastro-intestinal tract. Even in carcinoma of the uterus there is some disagreement as to the effects on all types. Whether the combination of irradiation with subsequent surgery in this field and also in carcinoma of the cervix offers any better salvage than with irradiation alone is still open to discussion. There is some evidence that it is difficult to destroy all the cells even in the cervical neoplasms of the squamous type and that the five year results are somewhat better if the hysterectomy is done shortly after the radiation treatment. Only future observations will render it possible to obtain reliable figures. There is some contradiction, too, in the cervical neoplasms, for if undifferentiated carcinomas are considered as sensitive and the adenocarcinomas as resistant, the clinical results are not comparable, because the adenocarcinomas may metastasize to the pelvic tissues late and the highly differentiated and smaller celled forms metastasize early. Thus a paradox is obvious; the more malignant type of neoplasm may be more easily curable by irradiation. But here, too, final conclusions await greater experience.

The danger of grouping and its application to sensitivity is the tendency to dogmatism in saying that a group I tumor is resistant and must be operated on while a group IV tumor is sensitive and must be treated with radiation. It is being slowly realized that dogmatism in this field is not always rewarded by good results. For these reasons it is of the utmost importance that our future records of large groups be published accompanied by photographs of typical portions of the growth, so that the results obtained in different clinics may have some basis for comparison. Every hospital pathologist should avoid wordy descriptions of tumors and spend his time in seeing that more sections are prepared and preserved under such conditions of permanence that they will always be available when the final check up comes. Even insurance companies can well afford to demand and file slides of all those applying for insurance who have had an operation for any form of neoplasm whether benign or malignant. It is also essential that enough slides be available so that they can be exchanged, for patients often travel in these days from clinic to clinic and some of the samples that one sees of bad technic are revealing in the impossibility of making a diagnosis from the so-called stained sections.

The experimental use of certain chemicals, both of unknown nature as secreted by parasites and the recently discovered hydrocarbons with which the name of Cook of the Royal Cancer Hospital in London will always be associated, has caused a change in our notions as to the hereditary possibilities. It seems probable that ultimately we may have to give up the idea of genetic relationships of cancer, except such as control the length of life of the animal. The sum total of such experimental work has been to show that no genetic correlation with the initiation of cancer can be discovered and that the only factors which are correlated with the appearance of a neoplasm are the length of life of the animal and the amount of the irritation. We might as well give up saying that we know nothing about the cause of cancer, because we know just as much about it as we do of the cause of tuberculosis, for instance.

The suggestion is made that because tumors have a variable morphology there must be variable causes, but we know now that a parasitic worm in the liver of the rat will incite seventeen different varieties of tumor, including chondromas and osteogenic sarcomas. We find that dibenzpyrene and methylcholanthrene will produce, as far as one can see, tumors in any organ in which they are known to occur. We are beginning to understand the results of tissue culture, which have shown that the connective tissues of the body contain not a single type of cell but a great variety of cells and so can see an explanation for the extraordinary group of connective tissue tumors that are now appearing. In animals composite tumors are not uncommon. An irritant placed in the breast will cause a carcinoma and at the same time a sarcoma, so there is produced what the Germans term a "collision" tumor. Secondly, cells which have hitherto not been thought to exist in such adult connective tissue of the subcutaneous regions may react to these concentrated stimuli and produce tumors of striated or unstriated muscle, of fat tissue, and of a type hitherto strictly confined to the bones, the osteogenic sarcomas, even including cartilage.

Speaking of these bone types, the injection of radioactive material has now been shown to be a fairly effective means of producing osteogenic sarcomas of various types in the bones of laboratory animals. Radium, mesothorium and thorium dioxide sol have all been shown to be admirably effective in the course of time in this regard.

There has been nothing more interesting lately from a tumor point of view than the discovery by Zondek and Ferguson that teratoid tumors of the testicle can be diagnosed with the Aschheim-Zondek reaction. No doubt all tumors give rise to small amounts of gonadotropic substance, but it is not detectable by the ordinary tests, so this phenomenon is chiefly valuable in checking the nature of suggestive uterine and testicular tumors, and also for prognosis, as a positive reaction points to a recurrence. The ovarian hormones have been accused of many crimes, but gradually sanity is returning and a general agreement seems to have been reached to postpone any further statements until more is known on the subject. The view is gaining ground that the type of tumor is not at all determined by the genetic constitution of the host, as the geneticists are fond of stating, but that it is the cell which yields to the irritant by an abnormal type of growth, a somatic mutation or whatever one chooses to call it; in other words, the formation of a new race of cells that makes the tumor what it is. This fact is beautifully demonstrated even in human pathology. All of us have seen cases of multiple carcinoma. I recall an instance in which a patient had a quiescent basal cell carcinoma, a carcinoma of the gastro-intestinal tract, both of which were relatively benign, and then a melanoma developed, which carried the patient off rapidly. Here were three types of neoplasm in a single body, which certainly was genetically homozygous to itself, and because three different types of cells happened to be irritated and underwent a malignant change, three different types of cell biology were represented in the neoplasms. These are some reasons why those who are doing experimental work are not especially interested in mere morphology. What excuse has a rat to have an osteogenic sarcoma in his liver? It is obvious that if morphology and genetics do not help us, the door is opening for the chemist. When Warburg showed that the cancer cell metabolized dextrose in a different fashion from the healthy, uninjured, homologous cell, he did not explain the cause of cancer, but he explained why a cancer cell can get along under circumstances which the healthy cell finds difficult for life. When Cook discovered the carcinogenic substances and extracted dibenzpyrene from coal tar, he explained a type of cancer that has occurred for many years in human beings and placed in the hands of the laboratory worker a means of obtaining an immense number of primary tumors. The grafted tumors are merely a race of cells under cultivation. The advantage of obtaining by grafting isolated cells of cancer of

various types, at short notice, has resulted in a great change in our ideas, but also, owing to lack of training of those who do cancer research, has produced a good deal of rubbish which has greatly puzzled those not familiar with laboratory technic. Do the medical schools teach anything of what I have spoken? From many years' experience with interns, I would say that they seem to know less of cancer than almost any other subject in medicine, and yet this disease is now the second most important cause of death.

(To be continued)

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 22-24. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ARIZONA: Phoenix, April 6-7. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

ARKANSAS: *Basic Science.* Little Rock, May 3. Sec., Mr. Louis E. Gebauer, 701 Main St., Little Rock. *Medical (Regular).* Little Rock, June 17-18. Sec., Dr. A. S. Buchanan, Prescott. *Medical (Eclectic).* Little Rock, May 11. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Reciprocity.* San Francisco, May 9. *Examinations.* San Francisco, June 28-July 1, and Los Angeles, July 19-22. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, April 6. Sec., Dr. Harvey W. Snyder, 422 State Office Bldg., Denver.

CONNECTICUT: *Basic Science.* New Haven, June 12. *Prerequisite to license examination.* Address State Board of Healing Arts, 1895 Yale Station, New Haven.

DELAWARE: Dover, July 13-15. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, Dover.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, June 28-29 (probable dates). *Medical.* Washington, July 12-13. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: Jacksonville, June 14-15. Sec., Dr. William M. Rowlett, Box 786, Tampa.

HAWAII: Honolulu, July 12-15. Sec., Dr. James A. Morgan, 48 Alexander Young Bldg., Honolulu.

IDAHO: Boise, April 6. Commissioner of Law Enforcement, Hon. J. L. Balderston, 205 State House, Boise.

ILLINOIS: Chicago, April 6-8, June 22-25 and Oct. 19-21. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

INDIANA: Indianapolis, June 22-24. Sec., Board of Medical Registration and Examination, Dr. William R. Davidson, 301 State House, Indianapolis.

IOWA: *Basic Science.* Des Moines, April 13. Sec., Prof. Edward A. Benbrook, Iowa State College, Ames. *Medical.* Iowa City, June 8-10. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

KANSAS: Topeka, June 15-16. Sec., Board of Medical Registration and Examination, Dr. C. H. Ewing, 609 Broadway, Larned.

KENTUCKY: Louisville, June 9-11. Sec., State Board of Health, Dr. A. T. McCormack, 532 W. Main St., Louisville.

MARYLAND: *Medical (Regular).* Baltimore, June 15-18. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Medical (Homeopathic).* Baltimore, June 8-9. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MICHIGAN: Ann Arbor and Detroit, June 9-11. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 202-204 Hollister Bldg., Lansing.

MINNESOTA: *Basic Science.* Minneapolis, April 6-7. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical.* Minneapolis, April 20-22. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.

MISSISSIPPI: Jackson, June. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MONTANA: Helena, April 6. Sec., Dr. S. A. Cooney, 7 W. 6th Ave., Helena.

NEBRASKA: *Basic Science.* Omaha, May 4-5. *Medical.* Omaha, June 8-9. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEVADA: Carson City, May 3-4. Sec., Dr. John E. Worden, Box 630, Carson City.

NEW JERSEY: Trenton, June 15-16. Sec., Dr. James J. McGuire, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, April 12-13. Sec., Dr. Le Grand Ward, Box 693, Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 28-July 1. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.

NORTH CAROLINA: Raleigh, June 21. Sec., Dr. Ben J. Lawrence, 503 Professional Bldg., Raleigh.

NORTH DAKOTA: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, 4½ S. 3rd St., Grand Forks.

OKLAHOMA: Oklahoma City, June 9-10. Sec., Dr. James D. Osborn Jr., Frederick.

OREGON: *Medical.* Portland, June 15-17. Sec., Dr. Joseph F. Wood, 509 Selling Bldg., Portland. *Basic Science.* Corvallis, July 17. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 6-10. Sec., Board of Medical Education and Licensure, Dr. James A. Newpher, Education Bldg., Harrisburg.

SOUTH CAROLINA: Columbia, June 22. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: Rapid City, July 20-21. Dir., Division of Medical Licensure, Dr. B. A. Dyar, State Board of Health, Pierre.

VERMONT: Burlington, June 16-18. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 17-19. Sec., Dr. J. W. Preston, 28½ Franklin Road, Roanoke.

WISCONSIN: Milwaukee, June 29-July 2. Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Milwaukee.

WYOMING: Cheyenne, June 7. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the *National Board of Medical Examiners and Special Boards* were published in THE JOURNAL, March 27, page 1137.

Arkansas November Examination

Dr. A. S. Buchanan, secretary, State Medical Board of the Arkansas Medical Society, reports the written examination held in Little Rock, Nov. 10, 1936. The examination covered 12 subjects and included 120 questions. An average of 75 per cent was required to pass. Two candidates were examined, both of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Arkansas School of Medicine		(1936)	78.9
Tulane University of Louisiana School of Medicine		(1935)	81.7

Nine physicians were licensed by reciprocity and one physician was licensed by endorsement from June 20 through October 21. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Tulane University of Louisiana School of Medicine		(1928) (1935)	Texas, Louisiana, Oklahoma
University of Michigan Medical School		(1925)	Michigan
Washington University School of Medicine		(1925), (1935)	Missouri
Memphis Hospital Medical College		(1911)	Mississippi
University of Tennessee College of Medicine		(1935)	Tennessee
Vanderbilt University School of Medicine		(1932)	Tennessee

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Cornell University Medical College		(1934)	N. B. M. Ex.

Kentucky Reciprocity and Endorsement Report

Dr. A. T. McCormack, secretary, State Board of Health of Kentucky, reports 14 physicians licensed by reciprocity and 3 physicians licensed by endorsement from Aug. 7 through Dec. 22, 1936. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Howard University College of Medicine		(1935)	Missouri
Chicago College of Medicine and Surgery		(1909)	Illinois
University of Maryland School of Medicine and College of Physicians and Surgeons		(1931)	Maryland
Harvard University Medical School		(1917)	Mass.
University of Michigan Medical School		(1929)	Michigan
Washington University School of Med.		(1930)	Iowa, (1932) Missouri
Eclectic Medical College, Cincinnati		(1935)	Ohio
University of Cincinnati College of Medicine		(1935)	Ohio
Meharry Medical College		(1928)	Tennessee
University of Tennessee College of Medicine		(1935), (1936)	Tennessee
Vanderbilt University School of Medicine		(1935)	Tennessee

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists		(1934)	N. B. M. Ex.
Cornell University Medical College		(1933)	N. B. M. Ex.
Vanderbilt University School of Medicine		(1935)	N. B. M. Ex.

Tennessee December Examination

Dr. H. W. Qualls, secretary, Tennessee State Board of Medical Examiners, reports the written examination held in Memphis, Dec. 16-17, 1936. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Nineteen candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1936)	86.4
Northwestern University Medical School		(1935)	82.6
University of Tennessee College of Medicine		(1936)	81.5, 82, 82.4, 82.5, 83, 83.1, 84, 84.3, 85.1, 85.6, 86, 86, 86.1, 86.3, 86.8, 87.1
Queen's University Faculty of Medicine		(1931)	86.8

Six physicians were licensed by endorsement from November 12 through December 21. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Johns Hopkins University School of Medicine		(1912)	Maryland
Columbia Univ. College of Physicians and Surgeons		(1933)	New York
University of Oklahoma School of Medicine		(1934)	Oklahoma
University of Nashville Medical Department		(1908)	S. Carolina
University of Tennessee College of Medicine		(1931)	Mississippi
Medical College of Virginia		(1912)	Virginia

Book Notices

Bright's Disease and Arterial Hypertension. By Willard J. Stone, B.Sc., M.D., F.A.C.P., Clinical Professor of Medicine, School of Medicine, University of Southern California, Los Angeles. Cloth. Price, $5. Pp. 352, with 32 illustrations. Philadelphia & London: W. B. Saunders Company, 1936.

This excellently printed volume is a condensed statement of the well known facts regarding Bright's disease. It is beautifully illustrated with photomicrographs both in color and in black and white. The style is clear and lucid. The organization and arrangements are logical but there appears to be an overemphasis of classification in an attempt to divide the various types of renal disease into small semidemarcated entities. The first half of the book includes a brief historical sketch, classification of Bright's disease, discussion of renal functions and methods of testing these, the water balance of the body, acidosis, uremia, laboratory procedures and pathologic consideration. The remainder of the book is concerned with a discussion of the so-called specific forms of the disease in its various subdivisions. These subdivisions are further separated into acute, second and terminal stages. Appended are brief one paragraph case reports of 140 cases in which necropsies have confirmed the clinical diagnosis. The discussion of the physiology of the kidney is sound but rather brief and sketchy in its presentation. Weakest of all is the discussion of hypertension both independently and in its relation to renal disease. About fifty pages is devoted to those forms of nephritis in which hypertension is a conspicuous problem and/or to hypertension per se. This discussion is inadequate to justify the second half of the title of the book. There appears to be a lack of correlation between the physiologic consideration, phenomena of Bright's disease and its treatment. In some places treatment is considered fully, in others presented most sketchily. The discussion of treatment is probably orthodox everywhere in the sense that it conforms with the general trend of opinion. One fails, however, to find any adequate presentation of the reasons why such treatment, which is advised, should be instituted. On the whole, this book can be considered a good summary of the known or largely assumed facts and theories of Bright's disease, and in no place could a student or nonspecialist be led astray. For the student of renal disease and for the investigator, the book is a bit of a disappointment in that it really presents nothing new.

Trachoma. By A. F. MacCallan, C.B.E., M.D., F.R.C.S., President of the International Organization against Trachoma. Embodying the Hunterian Lecture at the Royal College of Surgeons of England, 1936, on the Surgery and Pathology of Trachomatous Conjunctivitis. Cloth. Price, £1. 1s. Pp. 225, with 19 illustrations. London: Butterworth & Co., Ltd., 1936.

Here is an important piece of work by the foremost trachomatologist of these times and as such must be given due consideration. The book is well printed on a somewhat different grade of paper than is commonly found in American textbooks. The majority of the illustrations are in color and all are well done. After the introduction there are chapters on clinical manifestations, sequelae, complications, differential diagnosis, treatment, pathologic anatomy, epidemiology and historical aspects. A complete author and subject index concludes the volume.

In 1903 MacCallan was called from London to assume charge of the newly started governmental endeavor to control trachoma in Egypt. For twenty-one years he worked and built up an organization which now includes thirty permanent ophthalmic hospitals, fourteen traveling ophthalmic hospitals under canvas, twenty ophthalmic departments in government general hospitals, and thirty-two daily ophthalmic clinics in government schools. These institutions are staffed almost exclusively with Egyptian physicians trained by MacCallan. During 1934, 928,215 new patients were treated at these hospitals, and on them were performed 94,681 operations for trachoma, cataract and glaucoma. Truly a monument of noble proportions.

It would seem presumptuous to question the word of a trachomatologist as eminent as the author, but is it universally accepted that corneal involvement is necessary to establish the diagnosis of trachoma? This point is insisted on by MacCallan, who properly utilizes the advantages of biomicroscopy whenever possible. Tarsectomy, which has been entirely rejected in this country, is still counted among the therapeutic measures advocated in certain circumstances by the author. Again no mention is made of the well known absence of trachoma among the American Negroes, although it undoubtedly exists among the African Negroes, as shown by an analysis of the distribution of the disease throughout the British colonies.

The book is too full of material to permit of comment on any special phase, material garnered from a decade of rich personal experience. To one less well versed in the treatment of trachoma than the author, the value of the text would be enhanced by somewhat greater attention to therapeutic measures and diagrammatic illustrations of the various operative procedures employed. But the chapters on pathologic anatomy and epidemiology more than make up for any of the minor deficiencies noted. The book is a vast improvement over the author's "Trachoma and Its Complications in Egypt" of 1903, for it contains a thorough digest and bibliographic references to the important work of the past decade. It is particularly pleasing to note the high value placed on Thygeson's work but yet the cautious refusal to accept etiologic conclusions that have not been proved to the author's satisfaction.

As said in the beginning, here is an important book. It must be read by every ophthalmologist who sees or may see even a single case of trachoma; it should form the Bible of the public health medical officers engaged in antitrachomatous campaigns; and it can be studied with profit by every epidemiologist.

Holt's Diseases of Infancy and Childhood: A Textbook for the Use of Students and Practitioners. By the late L. Emmett Holt, M.D., and John Howland, M.D. Revised by L. Emmett Holt Jr., M.D., Associate Professor of Pediatrics, Johns Hopkins University, Baltimore, and Rustin McIntosh, M.D., Carpentier Professor of Diseases of Children, Columbia University, New York City. Tenth edition, revised. Cloth. Price, $10. Pp. 1,240, with 205 illustrations. New York & London: D. Appleton-Century Company, Incorporated, 1936.

The first edition of this volume by the late L. Emmett Holt appeared in 1897. Subsequent editions were revised by John Howland; the present edition was prepared by L. Emmett Holt Jr. and Rustin McIntosh. In the present revision the authors have endeavored as much as possible to retain the personal opinions and attitudes of the original authors. They supplement the text with a bibliography and add much material on pathogenesis. So extensive have been advances in the field of nutrition, the blood and allergy and also on some of the infectious diseases and on endocrinology that certain sections have been rewritten completely and extensive revisions made in others. Perhaps a dozen associates have been called on by the authors for the revision of some of the special sections of this book. Its usefulness is manifest from its record of sales.

Handbuch der mikroskopischen Anatomie des Menschen. Herausgegeben von Wilhelm v. Möllendorff. Band V: Verdauungsapparat. Teil 3: Zähne, Darm, Atmungsapparat. Bearbeitet von W. Bargmann et al. Paper. Pp. 908, with 426 illustrations. Berlin: Julius Springer, 1936.

The von Möllendorff Handbuch in seven volumes constitutes a comprehensive and reliable review of the results of research in microscopic anatomy up to the present time. This book is the third part of the fifth volume and it deals with part of the digestive apparatus, namely, the teeth and the intestine, and also with the respiratory apparatus. The section devoted to the intestine has been written by Dr. Viktor Patzelt of Vienna and includes 448 pages and 169 illustrations. The review of literature is exhaustive and is arranged under the logical headings (1) general structure, including evolution and functional differentiation, (2) development, (3) constituent parts of the intestine—their evolution and function in the animal series, and (4) the contents of the intestine. The section on the teeth is written by Dr. Josef Lehner and Prof. Hanns Plenk of Vienna. It includes 260 pages with 119 illustrations. It deals with (1) gross anatomy, theories of origin and of the complex form of teeth; (2) phylogenesis; (3) development of the teeth and of the jaw, under the headings of enamel, dentin, cement, pulp and periodontal membrane. The section on the respiratory apparatus is by Dr. R. Heiss of Königsberg. It includes ninety pages and 101 illustrations. There follows an appendix on the lung alveoli by Dr. Bargmann of Zurich covering sixty pages, with thirty-seven illustrations. The review of the literature is thorough and the bibliography accompanying each section is a valuable contribution. At the end there is a twenty-five page index of authors and a twenty-three-

page index of subjects considered. The book constitutes a storehouse of information, covering the microscopic anatomy of the vertebrate series of animals. It will be an exceedingly valuable and almost indispensable reference book for any one wishing to study the literature on any particular structure in the field covered by the book. The format and the illustrations are in accord with the pleasing and satisfactory manner that is customary with the publications of Julius Springer.

Oral Diagnosis and Treatment Planning: A Text for the Dental Student; A Reference Book for the Practitioner and Medical Student. By Kurt H. Thoma, D.M.D., Charles A. Brackett Professor of Oral Pathology in Harvard University. Cloth. Price, $6. Pp. 379, with 533 illustrations. Philadelphia & London: W. B. Saunders Company, 1936.

The subtitle properly describes this book as a text for the dental student, a reference book for the practitioner and medical student. For the former it is indispensable; in addition it is a handy and usable guide for both physicians and dentists in their efforts to identify and evaluate the diseases and lesions of the oral cavity. It begins with a brief statement of instructions for its use. Part I, on the theory of diagnosis and treatment planning, is covered in twenty-one pages. Part II, seventy-five pages, deals with methods of examination and includes the preparation of the clinical history, general and special examinations, laboratory tests and roentgenographic technic as well as interpretation. The directions for all examinations and tests are more than adequate. Part III comprises the bulk of the text and is concerned with the clinical diagnosis of dental and oral diseases. The organization of this part is such that it is quite possible, given even a single symptomatic clue, to set up a diagnostic problem that is relatively simple so that the chances for a correct solution are materially enhanced. There is an eleven page bibliography, which has been carefully selected to include the best in recent literature bearing on the subject. The index is unusually complete and is arranged to facilitate rapid location of pertinent matter in the body of the book. The copious illustrations are excellent and highly helpful. Their relatively small size does not detract from their value, and this has made it possible to cover visually a tremendous amount of subject matter without unduly increasing the size of the book. The author has made an important and helpful contribution to the art of oral diagnosis.

Essentials of Modern Medical Treatment. By Vincent Norman, M.D., M.R.C.P., F.R.C.S. Cloth. Price, 10s. 6d. Pp. 200. London: Hutchinson's Scientific and Technical Publications, 1936.

This aims to provide the busy general practitioner with a work for ready reference on treatment. It is surprising how much practical information is packed into a small volume. Ripe experience shines through many of its maxims; e. g., "In sciatica do not attempt to stretch the nerve by extending the leg; it does more harm than good." Or, for obstinate cases of trigeminal neuralgia, "consider injection of 30 minims of alcohol, 90 per cent. This should only be done by an expert, and in any case risk of subsequent blindness is considerable. Most satisfactory treatment for intractable cases is partial ganglionectomy, which leaves out the inner and ophthalmic fibers, and so avoids risk of keratitis." In epilepsy "the ketogenic diet is only of limited benefit." In Ménière's disease, phenobarbital is recommended for the prevention of the attacks. In connection with the therapy of paralysis agitans the interesting statement is made that larger doses of scopolamine may be given if combined with pilocarpine. In the therapy of children's convulsions the author pins his faith on the warm, not hot, bath, vigorous rubbing of the skin, a warm soapsuds enema, and a dose of castor oil. He does not advise bromide and chloral, as he finds them too depressing. These examples, culled at random from chapter I on diseases of the nervous system, may suffice to show how rich in information on therapy this book is. Unfortunately, the author's training in prescribing has come down from the days when nearly all medicine had to have a horrible taste. With the frequent administration in liquid dosage form of quinine sulfate, strychnine or ferric chloride, his patients certainly have a bitter and rather nasty time of it. There being no such thing as the "Council on Pharmacy and Chemistry" in Great Britain, the author may possibly be excused if his pages reveal a greater partiality to proprietary medication than would be considered desirable in this country in a scientific book on medical treatment.

Urological Roentgenology: A Manual for Students and Practitioners. By Miley B. Wesson, M.D., and Howard E. Ruggles, M.D., Roentgenologist to University of California Hospital. Cloth. Price, $5. Pp. 269, with 227 illustrations. Philadelphia: Lea & Febiger, 1936.

This is an excellent volume for the beginner in urography, as it contains a remarkable collection of well reproduced pyelograms. Many of these urograms will be of interest to the most expert urologist also. This book shows the result of having been long in preparation, however, as certain advice and discussions are now obsolete. The expense of using intravenous preparations for retrograde pyelograms is discussed. Twenty per cent hippuran costs about 1 cent per cubic centimeter, which makes the medium for the average pyelogram cost from 10 to 15 cents; this is certainly not excessive. The great value of excretory urography in certain conditions is not properly stressed. Certainly this is of use in cases other than those in which cystoscopy is impossible. The text is not of the same high quality as the illustrations, and one doubts whether discussion of workmen's compensation is proper in a book entitled "Urological Roentgenology." The subject as a whole, with the exception of chronic renal infections, is well covered. The last illustration is printed upside down for no apparent reason. A good index is appended.

Experimental Studies on a Transmissible Myelomatosis (Reticulosis) in Mice. By Otto Kaalund-Jørgensen. Paper. Price, 12 kronor. Pp. 142, with 25 illustrations. Copenhagen: Levin & Munksgaard, 1936.

The fact that leukemia occurs in mice was observed by Eberth in 1878. Since that time there have been numerous studies of leukemia, lymphosarcoma and leukosarcoma in the smaller laboratory animals. Of late it has been found that lymphatic and myeloid leukemia can be transmitted by inoculation in inbred strains of mice but is possible only with living cells and in the author's experiments mainly in animals that were previously irradiated. The conclusion has been drawn by Furth and others from their studies that lymphomatosis and also myelosis represent a neoplastic process. The author, while he surveys fully the conclusions of others, has confined his own observations to a leukemic disease in which myeloblasts are abundant in the blood, a myelomatosis in contrast to Furth's myelosis, in which myelocytes predominate. The pathologic changes in the blood and organs of the mice with myelomatosis were carefully studied. Curiously the spleen is not enlarged in this condition though it is regularly enlarged in the lymphomatoses. The most abundant pathologic cells in the blood are, as has been said, classified as myeloblasts. No peroxidase reaction was given by these cells, although the occasional myelocytes and ordinary leukocytes gave positive reactions. It is possible that this lack of reaction is due to the extreme immaturity of the cells. The author regards the type of myelomatosis studied as a systemic neoplastic process intimately associated with the reticulum. The volume ends with a long bibliography and a series of twenty-five drawings and photographs and forms an excellent contribution to a subject which, in spite of the large amount of work that has been done on it in the last few years, is still obscure in many aspects.

Skin Diseases in Children. By George M. MacKee, M.D., Professor of Clinical Dermatology and Syphilology, New York Post-Graduate Medical School, Columbia University, New York, and Anthony C. Cipollaro, M.D., Associate in Dermatology and Syphilology, New York Post-Graduate Medical School, Columbia University, New York. Cloth. Price, $5.50. Ph. 345, with 153 illustrations. New York & London: Paul B. Hoeber, Inc., 1936.

This book can well be recommended for what it is intended to be, a practical useful edition for practitioners in general medicine. It is a clinical presentation throughout, the anatomy, physiology and pathologic descriptions being omitted, and the authors also avoided emphasis on precise dermatologic refinements. For these the reader is referred to larger dermatologic textbooks. The classification employed is a convenient one; there is a chapter on diseases in which pyogenic bacteria are etiologic factors, and others concern diseases due to fungi, drug eruptions, the eczema group, erythema group, new growths and congenital defects. The discussions are in good balance, with proper emphasis on the diseases that are encountered most frequently, and they are described plainly and with clear word pictures. The exanthems are omitted. The treatment is orthodox, and throughout there are prescription formulas that

can be compounded readily by any pharmacist. The illustrations, all in black and white, are well selected. Altogether the book is a sound introduction to practical clinical dermatology, with especial emphasis on conditions that are encountered in children.

La diabetes en la practica. Por el Dr. Francisco Gnecco Mozo. Paper. Pp. 107. Bogota: Editorial Cromos, 1936.

This is intended for medical students, especially of Colombia. The purpose of the author is to simplify the whole subject of diabetes, a knowledge of which was previously available to them only in some gigantic treatise on the disease. In opening the subject the author prefers to substitute, in preference to a long list of symptoms, numerous clinical cases for clarification and diagnosis of diabetes, following this by a summary of local disturbances referable to diabetes skin, gastro-intestinal and genito-urinary tracts, neurologic, cardiovascular and respiratory systems and trophic changes. This approach to the subject is original and excellent because it recognizes the great and confusing variety of symptoms by which the disease may be first manifested. In the etiology of diabetes he speaks of senile lassitude of the pancreas because of the greater frequency of diabetes in persons over 40 years of age. He fails to discuss satisfactorily hepatic glycogen disturbances as a possible contributing etiologic factor. One is under the impression that only the pancreas is at fault in diabetes. He also speaks of two forms of diabetes, that of youth with rapid evolution and that of mature age of longer duration, a confusion because, while true as a generalization, it is not necessarily true in every case. The author unfortunately speaks of the drugs Sintalina-B and Copalchi in the treatment of "mild cases of diabetes" and affirms their efficacy in doses advocated by their manufacturers. That no drug on the market today can control diabetes, clinical research amply shows. On the other hand, he does not speak of protamine insulin, the new slow acting insulin compound, nor does he describe sufficiently the effects of plain or ordinary insulin on the carbohydrate metabolism. Diets are not thoroughly gone into. Since this manuscript is for students, it should be more thorough in describing disturbances of carbohydrate metabolism and the complications of diabetes. The author hopes that the good seed of curiosity will be sown in this manuscript so to inspire later on a greater and more worthy work in diabetes. No doubt this will happen. On the whole, students will acquire much from this manual that will be helpful to them.

Digestion and Health. By Walter B. Cannon, George Higginson Professor of Physiology, Harvard Medical School. Cloth. Price, $2. Pp. 160, with 14 illustrations. New York: W. W. Norton & Company, Inc., 1936.

Dr. Cannon is internationally known as a contributor to our knowledge of physiology. He is known for his ability in expressing his knowledge equally to scientific and to public audiences. In some fundamental essays, first developed in lecture form, he traces the nature of appetite and hunger, the nature of thirst, our knowledge of digestion and bodily vigor and the relationship of pain, worry and excitement to indigestion. In an epilogue he shows the importance of digestion in the body economy, adding it to the lungs, the heart and the brain as the fundamental systems of the human body.

It is significant that the lectures which form the basis of this volume are characterized as the Beaumont lectures, thus adding still further to the fame of that American founder of our knowledge of the physiology of digestion. The lectures were given in connection with the celebration of the publication of Beaumont's book on this subject.

Differentialdiagnose in der inneren Medizin. Lieferung 2. Von Prof. Dr. Med. O. Naegeli, Direktor der Medizinischen Universitätsklinik, Zürich. Paper. Price, 9.60 marks. Pp. 217-414, with 42 illustrations. Leipzig: Georg Thieme, 1936.

This volume of Naegeli's differential diagnosis continues the same high quality of condensed discussion that was present in the first volume reviewed in THE JOURNAL, July 11, 1936, page 156. The present volume includes presentation of the differential diagnosis of diseases of the abdomen, lungs and pleura. Diseases of the abdomen are divided into (1) abdominal pain, (2) abdominal resistance, (3) inflammatory lesions, (4) stenoses of the gastro-intestinal tract, (5) gastric diseases (ulcer, carcinoma and gastritis), (6) constitutional disorders, (7) rare gastric disorders, (8) achylia, (9) appendicitis, (10) the peritonitides, (11) diseases of the bowel and (12) diseases of the pancreas. The discussion of gastric disease receives disproportionate emphasis (thirty-four pages); all the rest of the gastro-intestinal tract is treated in but eighteen pages. The discussion of pulmonary tuberculosis is the least impressive portion of the work. Naegeli writes well and emphatically, but one again receives the impression that the patient is considered as a loosely correlated collection of systems rather than a finely correlated whole. The volume can be recommended as a reference work revealing modern European thought and methods.

The Truth About Bright's Disease. By William R. Ohler, M.D. Cloth. Price, $1. Pp. 80, with one illustration. Cambridge: Harvard University Press, 1936.

This little book, which can easily be read in an hour, presents the substance of a popular lecture recently delivered at the Harvard Medical School. Since the book is intended for laymen, its language is not technical. It should prove instructive to intelligent patients who have nephritis or to parents of afflicted children. Dr. Ohler considers only the common forms of "Bright's disease": that attributable to inflammation or to bacterial invasion and that attributable to degeneration or sclerosis of small arteries. Comments are made on the structure and function of the kidneys, the nature of normal and abnormal urine, the scope of Bright's disease and its course, and uremic poisoning and dropsy. Also briefly discussed are diet and dietary management, Bright's disease in pregnancy, and the treatment of acute and chronic nephritis.

The Aims and Methods of Medical Science: An Inaugural Lecture. By John A. Ryle, M.A., M.D., F.R.C.P., Regius Professor of Physic in the University of Cambridge. Paper. Price, 75 cents; 2s. Pp. 44. New York: Macmillan Company; Cambridge: The University Press, 1935.

This little brochure contains the lecture delivered by John A. Ryle on the occasion of his inauguration as regius professor of physic in the University of Cambridge. It is a scholarly discussion, with some criticism and some forecast of the ever present and ever important topic announced by the title. Professor Ryle is well aware of the value of research by specialists who devote all their time to the laboratory or ward. It is not surprising, however, that he who for many years has been in active practice in the hospital and the home should contend for the worth also of scientific observation by the one whose primary function is that of the practitioner. The ideas of the lecture are the same as those expressed in his larger publication, The Natural History of Disease, which was reviewed in THE JOURNAL Sept. 5, 1936.

Wall Chart and Code for Lungs Examination. By H. N. Chatterjee, B.Sc., M.D. Paper. Price, 2s.; Re. 1/8. Calcutta: Thacker Spink & Co., Ltd., 1933.

This wall chart, 13 by 17 inches in size, is a handy outline for chest clinics. It lists the apparatus needed for lung and throat examinations and then describes the position of the patient. There is a brief description of abnormalities observed on inspection, detection of abnormalities on palpation, sounds on percussion, and auscultatory sounds. In the center of the chart is presented a code of markings for the chest specialist, including auscultation and percussion signs. The chart is a useful guide for training physicians in the systematic and thorough examination of the lungs.

The Diagnosis and Treatment of Pneumonia. By Campbell P. Howard, B.A., M.D., C.M., Physician to the Montreal General Hospital, Montreal, Canada. Henry A. Christian, M.D., Sc.D., LL.D., General Editor of the Series. [Reprinted from Oxford Monographs on Diagnosis and Treatment.] Cloth. Price, $6.50. Pp. 373. New York: Oxford University Press, 1936.

This reprint from the Oxford Monographs on the diagnosis and treatment of pneumonia is a valuable compendium of the literature and contains chapters on the history, incidence and etiology, infection and immunity, morbid anatomy, symptomatology, physical signs, complications, clinical types and diagnosis, prognosis, prophylaxis and treatment of lobar pneumonia. There is a chapter on bronchopneumonia and one on the common cold. The latter contains some of the more recent work on the virus. The bibliography is excellent. A survey of our present knowledge of pneumonia may be found in this volume.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Societies: Contract Practice in Relation to Professional Ethics.—The plaintiffs, one as its manager, were employed by the Associated Physicians Clinic, operated by two members of the King County Medical Society. This clinic made contracts with business firms of Seattle to furnish necessary medical, surgical and hospital care to employees of such firms at a stipulated rate per month per capita. In April 1933 the King County Medical Society organized the King County Medical Service Corporation, described in the record as "identical in its plan and operation with that of the Associated Physicians Clinic and the other independent clinics." The following August, the medical society adopted an amendment to its by-laws, providing for the censure, suspension or expulsion of a member—

> who shall engage in contract practice unless the same shall previously have been authorized by the Board of Trustees of this Society, or who as physician or surgeon shall serve on the staff of or perform work for the patients of, or shall perform work in any institution or group or organization unless such services or work shall previously have been authorized by the Board of Trustees of this Society.

Shortly thereafter the society, it was alleged, threatened to expel the physicians who operated the Associated Physicians Clinic unless they abandoned their contract practice. The physicians apparently continued to engage in contract practice and on March 19, 1934, written charges were filed with the society against them, charging a violation of the by-law quoted. The two physicians then terminated their contracts with the plaintiffs, who thereupon instituted the present suit against the King County Medical Society, the King County Medical Service Corporation and certain officers, trustees and members thereof, alleging that the defendants had caused a breach of the contract between the Associated Physicians Clinic and the plaintiffs. The trial court sustained a demurrer interposed by the defendants, on the ground that the complaint failed to state a cause of action, and the plaintiffs appealed to the Supreme Court of Washington.

An employee, said the Supreme Court, has no right of action against an individual or group of individuals who organize to compete with his employer. The organization of the King County Medical Service Corporation by the King County Medical Society as a competitor of the Associated Physicians Clinic, therefore, did not create a cause of action against the defendants. Furthermore, the constitution, charter and by-laws of the medical society constituted a contract between the members of the society enforceable in the courts if not immoral or contrary to public policy or the law of the land. The two physicians, as members of the medical society, were required to obey the by-laws of the society or subject themselves to the penalty of suspension or expulsion from the society, and it is not material how selfish or unselfish the objects of the medical society may be. That the medical society had the right to adopt the by-law with respect to contract practice cannot be questioned. Whether such by-law was just, reasonable or wise is a question of policy which concerns only the medical society and its members. The society, in the enforcement of its by-laws for the direct purpose of benefit to itself and to its members, is not answerable for damage incidentally resulting to a third person. So long as membership in the medical society continues, the member can be compelled under his contract with the society to obey its laws, rules and regulations or suffer the penalty of fine, suspension or expulsion.

The enforcement of a by-law such as the one here involved, continued the court, does not amount to unlawful coercion. In *Seymour Ruff & Sons, Inc.* v. *Bricklayers', etc., Union,* 163 Md. 687, 164 A. 752, it was said:

> The decisions are practically in harmony in holding that it is within the power of labor unions, and it is lawful for them, to instruct or order their members not to accept employment with an individual, or to continue in such person's employment, where the action of a union is justifiable in the sense that it is to promote the welfare of the members of the union. Accordingly, the enforcing of a by-law forbidding members of the union to serve one who has broken a contract with its members does not amount to intimidation. Neither a fine or other disciplinary action under such by-law would be unlawful as to members who voluntarily subject themselves to the provision of such by-law. They are left free to enter the employment of the prescribed employer, although practically they are compelled to choose between the benefits of such employment and membership in the union.

In *Booker & Kinnaird* v. *Louisville Board of Fire Underwriters,* 118 Ky. 771, 224 S. W. 451, 21 A. L. R. 531, the court said:

> In almost every profession and every business there are associations or lodges or boards, organized by persons engaged in particular lines of industry or following certain professions, that have for their sole purpose the protection and promotion of the best interest of the business or profession in which they are engaged. And bodies like these, acting in a collective capacity, may, in a quiet orderly way when their interests demand it, refuse to deal with or have any business relations with any other person or persons they choose, although the effect of such combined action is to boycott the objectionable person. . . .

An association, in pursuing its legitimate objects, has the right to coerce a member by fine, suspension or expulsion, and the association will not, nor will its members, be liable in damages to those who may be directly or indirectly injured by such efforts. So long as a member remains in the association, he is subject to the coercive effect of a penalty exacted for breach of a by-law of the association. If he does not desire to abide by the obligations of his contract of membership, he may abandon his membership. No rights of the plaintiffs in this case, who were nonmembers, were invaded by the medical society when it established its code of ethics and insisted on compliance therewith through threat of expulsion of an offending member, and the enforcement of solidarity by threat of expulsion of the two physicians created no cause of action for the incidental damage resulting to the plaintiffs.

The judgment of the trial court for the defendants was therefore affirmed.—*Porter et al. v. King County Medical Society et al. (Wash.), 58 P. (2d) 367.*

Medical Practice Acts: Practice of Medicine by Insurance Company.—The Benjamin Franklin Life Assurance Company submitted to the state insurance commissioner of California for approval an insurance policy indemnifying against loss by reason of medical and hospital expenses occasioned by disease or injury suffered by the insured. The policy provided that the insurance company would reimburse the insured for actual expenditures made or obligations incurred for services rendered by legally qualified physicians, optometrists, hospitals, ambulances, pharmacies and x-ray medical laboratories, "approved and designated by the Policy-Holders Committee of the Company for the benefit of the Insured." In the application for the policy, the applicant authorized the policyholders committee "to approve and designate for me, during the life of the policy, the renderers of the services under the terms of the policy for which I am applying." The policy further provided that if the insured placed himself under the treatment or care of any person other than those approved and designated by the committee he thereby forfeited any rights to reimbursement for expenses in connection with such treatment or care. The insurance commissioner refused to approve the policy, and the company instituted mandamus proceedings to compel approval. The trial court gave judgment for the insurance company, and the insurance commissioner appealed to the district court of appeal, second district, division 1, California.

The insurance commissioner contended that the policy violated the medical practice act of California and that he should not be compelled to approve a policy the terms of which were unlawful. The court called attention to the fact that neither a corporation nor any other unlicensed person or entity may engage, directly or indirectly, in the practice of medicine. The insurance company urged that the policy did not undertake or agree to furnish any medical or other services to its members, nor undertake to employ any one to furnish such services, nor undertake to pay compensation to any person who furnished medical or other services. At the most, it was contended, the policy undertook to reimburse a policyholder the cost and

expenses incurred by him for medical and other services designated in the policy and such reimbursement was payable directly to the policyholder himself. While all this is literally true, the court said, that which the company as such cannot lawfully do it requires its members, by means of a contract with such members as individuals, to accomplish for it through the medium of a so-called policyholders committee, which in fact is not a committee of the policyholders but a committee of the company. The selection and designation of physicians by this committee is therefore a selection and designation by the company. The company thereby undertakes to do indirectly what it cannot do directly. If in its inception, said the court, it was not the plan of the company to circumvent the medical practice act, it is a coincidence that the physicians designated by the committee were to be so well protected, for in that connection the policy does not provide that the insured shall be compensated for losses covered by the policy, but that the insured shall be reimbursed. In other words, the insured is to get nothing until the physician is paid. The policyholder is not accorded the privilege of presenting his claim, collecting the amount and then paying the doctor. Under such circumstances it is evident that the physicians to be designated by the committee of the company are to receive equal, if not first, consideration in the dispensing of benefits. The company's plan, although designated insurance, plainly provides for the sale of medical services, which is the practice of medicine. The contention of the insurance commissioner, therefore, that the company under the guise of an insurance company proposed to engage in the practice of medicine must be sustained. The judgment of the trial court for the company was therefore reversed.—*Benjamin Franklin Life Assur. Co. v. Mitchell, Insurance Com'r (Calif.), 58 P. (2d) 984.*

Physical Examinations: Examining Physician Appointed by Court; Scope of Examination.—A Florida statute authorizes the court to appoint a physician to examine the plaintiff in a personal injury action when requested to do so by the defendant. The statute, said the Supreme Court of Florida, contemplates any and every kind of physical examination or test that may be deemed necessary or essential to ascertain the physical condition of the person examined. Even in the absence of statute, courts have inherent power to order a physical examination of the plaintiff in personal injury cases by a competent physician when such an examination is necessary to ascertain the nature, extent or permanence of the injuries. If the appointed physician determines that a microscopic or bacteriologic examination is necessary, and he cannot make such examination himself, he may have it made by a competent technician, pathologist or toxicologist or by another physician. He may send specimens to adequately equipped laboratories.

The report, however, of a chemist, bacteriologist or laboratory technician as to the result of his examination is not admissible in evidence. The person who made the examination, if he is qualified as an expert, may testify as to what it showed. A witness may qualify as an expert who is shown to have sufficient knowledge, whether gained from books, experience or experiments or other reliable sources, to make his opinion of value, and the trial court is vested with discretion in determining when such knowledge is exhibited. A physician appointed by a court cannot testify as to the nature and extent of an injury based solely on the report of an examination made to him by a technician or pathologist. The technician or pathologist must first testify as to the result of the examination and the physician may predicate his opinion on such testimony.—*Depfer v. Walker (Fla.), 168 So. 810.*

Workmen's Compensation Acts: Compensability of Asbestosis.—Where the evidence shows, said the Supreme Court of North Carolina, that an employee is suffering from asbestosis arising out of and in the course of employment and that such disease was not caused by accident, the injury results from an occupational disease and compensation under the workmen's compensation act was properly denied by the industrial commission.—*Swink v. Carolina Asbestos Co. (N. C.), 186 S. E. 258.*

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Birmingham, April 20-22. Dr. D. L. Cannon, 519 Dexter Ave., Montgomery, Secretary.

American Association for the Study of Neoplastic Diseases, Philadelphia, April 9-10. Dr. E. R. Whitmore, 2139 Wyoming Ave. N.W., Washington, D. C., Secretary.

American Association on Mental Deficiency, Atlantic City, N. J., May 5-8. Dr. E. Arthur Whitney, Elwyn, Pa., Secretary.

American College of Physicians, St. Louis, April 19-23. Mr. E. R. Loveland, 4200 Pine St., Philadelphia, Executive Secretary.

American Otological Society, New York, May 27-28. Dr. Thomas J. Harris, 104 East 40th St., New York, Secretary.

American Pediatric Society, University, Va., April 29-May 1. Dr. Hugh McCulloch, 325 North Euclid Ave., St. Louis, Secretary.

American Physiological Society, Memphis, Tenn., April 21-24. Dr. A. C. Ivy, 303 East Chicago Ave., Chicago, Secretary.

American Psychiatric Association, Pittsburgh, May 10-14. Dr. William C. Sandy, State Education Bldg., Harrisburg, Pa., Secretary.

American Society for Clinical Investigation, Atlantic City, N. J., May 3. Dr. J. M. Hayman Jr., 2065 Adelbert Road, Cleveland, Secretary.

American Society for Experimental Pathology, Memphis, Tenn., April 21-24. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Memphis, Tenn., April 21-24. Dr. E. M. K. Geiling, 947 East 58th St., Chicago, Secretary.

American Society of Biological Chemistry, Memphis, Tenn., April 21-24. Dr. H. A. Mattill, Chemistry Building, State University of Iowa, Iowa City, Secretary.

Arizona State Medical Association, Yuma, April 1-3. Dr. D. F. Harbridge, 15 East Monroe St., Phoenix, Secretary.

Arkansas Medical Society, Little Rock, April 12-14. Dr. W. R. Brooksher, 602 Garrison Ave., Ft. Smith, Secretary.

Association of American Physicians, Atlantic City, N. J., May 4-5. Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary.

California Medical Association, Del Monte, May 2-5. Dr. F. C. Warnshuis, 450 Sutter St., San Francisco, Secretary.

Connecticut State Medical Society, Bridgeport, May 19-20. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.

District of Columbia, Medical Society of the, Washington, May 5-6. Dr. C. B. Conklin, 1718 M St. N.W., Washington, Secretary.

Federation of American Societies for Experimental Biology, Memphis, Tenn., April 21-24. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.

Florida Medical Association, St. Petersburg, April 5-7. Dr. Shaler Richardson, 111 West Adams St., Jacksonville, Secretary.

Georgia, Medical Association of, Macon, May 11-14. Dr. Edgar D. Shanks, 478 Peachtree St. N.E., Atlanta, Secretary.

Hawaii Territorial Medical Association, Hilo, April 30-May 2. Dr. Douglas B. Bell, Queen's Hospital, Honolulu, Secretary.

Illinois State Medical Society, Peoria, May 18-20. Dr. Harold M. Camp, 202 Lahl Bldg., Monmouth, Secretary.

Iowa State Medical Society, Sioux City, May 12-14. Dr. Robert L. Parker, 3510 Sixth Avenue, Des Moines, Secretary.

Kansas Medical Society, Topeka, May 3-6. Mr. Clarence G. Munns, Stormont Bldg., Topeka, Executive Secretary.

Louisiana State Medical Society, Monroe, April 26-28. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, April 27-28. Dr. Walter Dent Wise, 1211 Cathedral St., Baltimore, Secretary.

Medical Library Association, Richmond, Va., May 23-26. Miss Janet Doe, 2 East 103d St., New York, Secretary.

Minnesota State Medical Association, St. Paul, May 3-5. Dr. E. A. Meyerding, 11 West Summit Ave., St. Paul, Secretary.

Mississippi State Medical Association, Meridian, May 11-13. Dr. T. M. Dye, McWilliams Bldg., Clarksdale, Secretary.

Missouri State Medical Association, Cape Girardeau, May 10-12. Dr. E. J. Goodwin, 634 North Grand Blvd., St. Louis, Secretary.

Nebraska State Medical Association, Omaha, May 11-13. Dr. R. B. Adams, 15 N Street, Lincoln, Secretary.

New Hampshire Medical Society, Manchester, May 18-19. Dr. Carleton R. Metcalf, 5 South State St., Concord, Secretary.

New Jersey, Medical Society of, Atlantic City, April 27-29. Dr. J. B. Morrison, 66 Milford Ave., Newark, Secretary.

New York, Medical Society of the State of, Rochester, May 24-26. Dr. Peter Irving, 2 East 103d St., New York, Secretary.

North Carolina, Medical Society of the State of, Winston-Salem, May 3-5. Dr. L. B. McBrayer, Southern Pines, Secretary.

North Dakota State Medical Association, Grand Forks, May 16-18. Dr. Albert W. Skelsey, 20½ North Broadway, Fargo, Secretary.

Ohio State Medical Association, Dayton, April 28-29. Mr. C. S. Nelson, 79 East State St., Columbus, Executive Secretary.

Oklahoma State Medical Association, Tulsa, May 10-12. Dr. L. S. Willour, 203 Ainsworth Bldg., McAlester, Secretary.

Society for the Study of Asthma and Allied Conditions, Atlantic City, N. J., May 1. Dr. W. C. Spain, 116 East 53d St., New York, Secretary.

South Carolina Medical Association, Columbia, April 13-15. Dr. E. A. Hines, Seneca, Secretary.

South Dakota State Medical Association, Rapid City, May 24-26. Dr. John F. D. Cook, Langford, Secretary.

Tennessee State Medical Association, Knoxville, April 13-15. Dr. H. H. Shoulders, 706 Church St., Nashville, Secretary.

Texas, State Medical Association of, Fort Worth, May 10-13. Dr. Holman Taylor, 1404 West El Paso St., Fort Worth, Secretary.

Western Branch of American Public Health Association, Phoenix, Ariz., April 13-15. Dr. William P. Shepard, 600 Stockton St., San Francisco, Secretary.

West Virginia State Medical Association, Clarksburg, May 24-26. Mr. Joe W. Savage, Public Library Bldg., Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

Alabama Medical Association Journal, Montgomery

6: 257-292 (Feb.) 1937

Factors in Automobile Accidents: Fatigue, Disease and Alcoholic Beverages. S. Harris, Birmingham.—p. 257.
Hypertension Without Edema. P. Clayton, Russellville.—p. 265.
Some Points in Differential Diagnosis of Common Lung Diseases. C. Lull, Birmingham.—p. 267.
Practical Suggestions in Pediatrics. J. J. Repa, Montgomery.—p. 270.

American Heart Journal, St. Louis

13: 129-256 (Feb.) 1937

Dissecting Aneurysm of Aorta: Clinical and Anatomic Analysis of Nineteen Cases (Thirteen Acute) with Notes on Differential Diagnosis. R. E. Glendy, B. Castleman and P. D. White, Boston.—p. 129.
*Electrocardiographic Changes in Normal Adults Following Digitalis Administration. K. Larsen, F. Neukirch and N. A. Nielsen, Copenhagen, Denmark.—p. 163.
Auricular Fibrillation with Congestive Failure and No Other Evidence of Organic Heart Disease. I. C. Brill, Portland, Ore.—p. 175.
Use of Chest Leads in Clinical Electrocardiography: I. Normal Variations. E. Sorsky, Fresno, Calif., and P. Wood, London, England.—p. 183.
*Heart Disease Among Seamen. H. Arenberg, Ellis Island, N. Y.—p. 197.
Diphasic QRS Type of Electrocardiogram in Congenital Heart Disease. L. N. Katz and H. Wachtel, Chicago.—p. 202.
Extreme Cardiac Enlargement. J. S. Golden and W. A. Brams, Chicago.—p. 207.
Variations in Electrocardiographic Form of Experimental Ventricular Ectopic Beats Induced in Monkey and Dog. D. I. Abramson, Brooklyn; L. N. Katz, Chicago; S. Margolin, New York, and R. Lourie, Brooklyn.—p. 217.
Displacement of Esophagus by Cardiac Lesions Other Than Mitral Stenosis. A. Babey, Brooklyn.—p. 228.

Electrocardiographic Changes in Normal Adults Following Administration of Digitalis.—Larsen and his associates investigated the effect of therapeutic doses of digitalis in fifteen normal young adults on each of the different parts of the electrocardiogram. A relative shortening of the QT interval was observed after administration of digitalis. This is in agreement with the demonstration by Wiggers and Stimson of a shortening of the systole following the administration of strophanthin to vagotomized dogs, whose heart rate was kept constant through electrical stimulation of the atrium. The changes in the height of the T waves are not in agreement with the observations of other investigators. The T waves became lower in one or more leads in fourteen cases and remained unchanged in one. The other changes in the electrocardiogram observed were found in only a few individuals. The heart rate became slower in nine and the conduction time increased in four cases. In two of the latter cases the PQ interval was above 0.2 second and the length of the interval varied with the respiratory phase. Therefore the conclusion is drawn that different individuals may behave differently toward the same dose of digitalis. The electrocardiographic changes were found to persist up to a period of about one month, a fact that must be considered in interpretation of electrocardiograms from patients who have received digitalis. Electrocardiographic changes were noticed, at the earliest, two hours after ingestion of the digitalis.

Heart Disease Among Seamen.—Arenberg points out that of about a million alien seamen entering and leaving the ports of the United States yearly one half pass through the port of New York. Heart disease is the leading cause of death among seamen, as it is among other groups of the population. Of 485 cases of heart disease, including fifty necropsies, selected from more than 5,000 seamen patients who had been subjected to a special cardiovascular examination regardless of the ailments for which they were admitted to the hospital, forty-five were not Caucasian. About 41 per cent of the group were native Americans, representing almost every state in the Union, and 59 per cent were foreign, coming from all parts of the world. Of the 485 patients, 130 had active or latent syphilis; 44 per cent of these had cardiovascular syphilis. The hypertensive group was the largest, totaling 202 patients. Their age extremes were 29 and 76 years, with the greatest number in the fifth and sixth decades of life. In the rheumatic group there were 102 cases. Only a small number were from the tropical or subtropical regions, while fifty of fifty-six Americans were from the Northeastern states. Sixty-nine had histories of rheumatic fever, and eleven histories of chorea. The age extremes were 19 and 62 years, the greatest number being in the third and fourth decades of life. There were twenty-seven asymptomatic patients in this group, and twenty-one had latent or active syphilis, while twenty-three had auricular fibrillation. In the atherosclerotic group were included all cases of coronary disease, coronary thrombosis, myocardial damage, sclerosis of the aortic valve and nonsyphilitic aneurysm, of which there were eighty-eight. The tropical and subtropical countries were almost entirely unrepresented. The age extremes were 37 and 75 years. The greatest number of cases occurred in the sixth and seventh decades. In contrast to the other groups there were only twelve asymptomatic cases. There were fifty-seven patients in the cardiovascular syphilitic group, fifty-five of whom had positive serologic reactions and two of whom had histories of syphilis with negative reactions. There were eleven asymptomatic cases. The age extremes were 26 and 68 years. There were eight patients with aneurysm, only two of whom gave a history of antisyphilitic treatment prior to this observation. The miscellaneous group of thirty-six cases included aortic insufficiency, auricular fibrillation, congenital cardiac lesions, adherent pericarditis, bacterial endocarditis, chronic cor pulmonale, thyroid heart conditions and cardiac hypertrophy of undetermined cause. Hypertension seems to be more frequent among seamen than among other groups in New York, and less frequent than it is in the Northwest. Rheumatic heart disease is about as frequent as among the general population, but American seamen are apparently more susceptible to it than seamen from other countries. The frequency of cardiovascular syphilis among seamen is from two to three times as great as that among adult males of the general population.

American Journal of Anatomy, Philadelphia

60: 185-340 (Jan. 15) 1937

Development of Cardiac-Coronary Circulatory System. J. B. Goldsmith and H. W. Butler, Oklahoma City.—p. 185.
Growth of the Eye in Three Strains of the Norway Rat. H. H. Donaldson and Helen Dean King, Philadelphia.—p. 203.
Studies of Suprarenal Glands of Dogs: I. Comparison of Weights of Suprarenal Glands of Mature and Immature Male and Female Dogs. D. D. Baker, New Orleans.—p. 231.
Observations on Living Mammalian Lymphatic Capillaries: Their Relation to Blood Vessels. E. R. Clark and Eleanor Linton Clark, Philadelphia.—p. 253.
Complex IV in Dog, with Special Emphasis on Relation of Ultimobranchial Body to Interfollicular Cells in Postnatal Thyroid Gland. M. C. Godwin, Ithaca, N. Y.—p. 299.

American Journal of Clinical Pathology, Baltimore

7: 1-104 (Jan.) 1937

A Clinical Pathologist for Every Approved Hospital. P. Hilkowitz.—p. 1.
Economic Aspects of the Hospital Laboratory. R. A. Kilduffe, Atlantic City, N. J.—p. 9.
*Efficiency of State and Local Laboratories in Performance of Serodiagnostic Tests for Syphilis. T. Parran, Washington, D. C.—p. 20.
Method for Determining Optimal Dose and Sensitivity of Antigens Used in Wassermann Test. F. Boerner and Marguerite Lukens, Philadelphia.—p. 33.
Universal Electroscopometer. W. G. Exton, Newark, N. J.—p. 42.
Pathology of Newer Commercial Solvents. A. V. St. George, New York.—p. 69.
Rapid Methods for Preparing Paraffin Sections of Tissues. Ruth C. Wanstrom, Ann Arbor, Mich.—p. 78.
Quantitative Isolation of Ethyl Alcohol from Tissues of Alcoholics. A. O. Gettler and H. Siegel, New York.—p. 85.

Efficiency of State and Local Laboratories in Performance of Serodiagnostic Tests for Syphilis.—Parran states that the study of the committee on the evaluation of serodiagnostic tests for syphilis reveals that in some of the state and local laboratories the serologic testing does not compare

favorably with the results achieved in the laboratories of the originators of the methods. On the other hand, in other state and local laboratories the results achieved are at least comparable to those obtained with the control tests. An efficient serodiagnostic test for syphilis should possess specificity of 100 per cent. Any test that yields even 1 per cent of false positive reactions should be so modified as to increase its specificity, even with some slight sacrifice of sensitivity. The examination of the clinical records of the presumably syphilitic donors in this study again emphasizes the fact that a serologic diagnosis of syphilis unsupported by history or clinical evidence should never be made on the basis of a single positive blood reaction. If a positive blood test is obtained in a person who presents no history or clinical evidence of syphilis, the test should be repeated in the same laboratory or in another laboratory, two or more different tests being utilized. The studies made by this committee show that, if two tests are to be performed, it is immaterial whether two efficient complement fixation tests, two efficient flocculation tests or a combination of one efficient flocculation test and one efficient complement fixation test is selected. It is satisfactory to report the results of qualitative tests as merely positive, doubtful or negative. In this way the confusion arising from the use of various symbols is avoided. The directors of laboratories performing serodiagnostic tests for syphilis should have, and should avail themselves of, the opportunity of comparing their results with those of well qualified serologists in other laboratories performing the same test on comparable samples from known syphilitic and presumably nonsyphilitic individuals. The committee recommends that such a system of comparative examination of tests be extended annually to all state laboratories. In turn, the state laboratories should offer a similar opportunity to local laboratories.

American Journal of Diseases of Children, Chicago

53: 429-672 (Feb.) 1937

Two Cases of Congenital Anomalies of the Brain. Cornelia de Lange, Amsterdam, Netherlands.—p. 429.
Lipids of Blood Plasma in Neonatal Period. M. J. E. Senn and Helen McNamara, New York.—p. 445.
Heredofamilial Deviations: I. Laurence-Moon-Biedl Syndrome. J. Warkany, G. S. Frauenberger and A. G. Mitchell, Cincinnati.—p. 455.
*Reaction Following Intramuscular Injection of Whole Blood. M. Rapoport and J. Stokes Jr., Philadelphia.—p. 471.
Clinicopathologic Study of Sexual Precocity with Hydrocephalus: Report of Two Cases Occurring in Females, with Postmortem Observations in One. G. B. Dorff, Brooklyn, and L. M. Shapiro, New York.—p. 481.
*Intestinal Stasis Due to Low Mineral Intake. Elizabeth Chant Robertson, Toronto.—p. 500.
Myringitis Bullosa Haemorrhagica. S. Karelitz, New York.—p. 510.

Reaction Following Intramuscular Injection of Whole Blood.—Of a group of 1,341 children given injections of citrated whole blood intramuscularly, fifty-two showed fever, malaise and leukocytosis, with swelling, redness and pain at the sites of injection for from two to ten days, average five and seven-tenths days, after the injection. These symptoms lasted from two to seven days (average three and one-half days) and left no sequels. Rapoport and Stokes investigated the blood types of seventeen of the children and the donors. All showed that their serum agglutinated the cells of the donor. It cannot be concluded that incompatibility of a recipient's serum with a donor's cells will always lead to a reaction following the intramuscular injection of blood. Surely more than fifty-two such incompatibilities would have occurred in a group of 1,341 injections, and what is more conclusive, the blood of some of the brothers and sisters of reacting children was similarly incompatible with that of their donors and they did not show reactions. Thirteen of the seventeen children showed hemolysin in their serum against the corpuscles of their donors. While no titrations of this hemolysin were attempted, it appeared to be present in fairly high titer, because in all instances the hemolysis took place before agglutination could occur. The hemolysins present in the serums of these thirteen children were probably an increase of normally occurring isohemolysins, in response to the injection of incompatible blood corpuscles. The other four children may have been tested too long after their reaction for hemolysis to take place, as the others were done within four weeks after the reaction.

Intestinal Stasis Due to Low Mineral Intake.—About two years ago, in the course of some other experiments, Robertson observed that rats fed a diet low in minerals showed intestinal stasis, which is evidenced by dilatation and overloading of the large intestine and by much delayed excretion of carmine and barium. The stasis can be cured by adding the missing minerals. Since the addition of calcium and potassium will prevent stasis, it seemed possible that a deficiency of these elements might cause stasis and it was decided to try out the effect of a diet containing about 0.2 Gm. of calcium and about 1 Gm. of potassium daily on nineteen convalescent children from 7 to 12 years of age, the intake of these minerals being reduced to about one fifth of the commonly accepted optimum. The tests on children are not completed, but they suggest that diets low in calcium and potassium are constipating and that such diets low in ash may cause stasis in the appendix which might easily increase the chances of formation of fecaliths and infection. When given a barium sulfate meal, 33 per cent of eighteen children fed diets low in calcium and potassium retained the barium in the appendix for from four to twenty-one days. The same children when fed normal diets did not show barium in the appendix for more than one day.

American Journal of Orthopsychiatry, Menasha, Wis.

7: 1-132 (Jan.) 1937

Question of Suicide as Problem in College Mental Hygiene. T. Raphael, Sadye H. Power and W. L. Berridge, Ann Arbor, Mich.—p. 1.
Considerations on Suicide, with Particular Reference to That of the Young. G. Zilboorg, New York.—p. 15.
Play Technic in Schizophrenia and Other Psychoses: I. Rationale. S. Rosenzweig and D. Shakow, Worcester, Mass.—p. 32.
Id.: II. Experimental Study of Schizophrenic Constructions with Play Materials. S. Rosenzweig and D. Shakow, Worcester, Mass.—p. 36.
Three Surveys of Treatment Measures Used with Children. C. R. Rogers, Rochester, N. Y.—p. 48.
Psychopathology and Treatment of Delinquent Girls. F. Powdermaker, H. T. Levis and G. Touraine, New York.—p. 58.
Mixed Dominance and Reading Disability. R. L. Jenkins, A. W. Brown and Laura Elmendorf, Chicago.—p. 72.
Indications for Camp Prescription. J. Chassell, Towson, Md.—p. 82.
Psychiatric Developments in a Family Welfare Agency. Elma Olson, Evanston, Ill.—p. 96.
Attitude Therapy. D. M. Levy, New York.—p. 103.
The Neurotic Delinquent. H. S. Lippman, St. Paul.—p. 114.

American Journal of Public Health, New York

27: 103-210 (Feb.) 1937

*Experience with Picric Acid-Alum Spray in Prevention of Poliomyelitis in Alabama, 1936. C. Armstrong, Washington, D. C.—p. 103.
Public Health Aspects of Treatment of Water and Beverages with Silver. J. Gibbard, Ottawa, Ont.—p. 112.
Malaria Control: Comments on Past and Future. T. H. D. Griffitts, Savannah, Ga.—p. 120.
The New York State Program for the Control of Pneumococcic Pneumonia. E. S. Rogers, Albany, N. Y.—p. 133.
Protective Antibodies in Blood Serum of Individuals After Immunization with Typhoid Vaccine. J. F. Siler, Washington, D. C.—p. 142.
Rôle of the Health Department in Prevention of Accidents. E. S. Godfrey Jr., Albany, N. Y.—p. 152.
Consolidated County Expenditures for Selected Health Services. W. F. Walker and L. Feldman, New York.—p. 156.
Statistical Study of Stillbirths in Hospitals: Preliminary Report. Elizabeth C. Tandy, Washington, D. C.—p. 161.
Application of Engineering Surveys to Hatters' Fur Cutting Industry. J. J. Bloomfield and J. M. Dalla Valle, Washington, D. C.—p. 167.

Experience with Picric Acid-Alum Spray in Prevention of Poliomyelitis in Alabama.—Armstrong states that the appearance of poliomyelitis in Alabama in 1936 afforded an opportunity to carry a field trial on man of spraying the nasal passages. In order to determine the extent to which the spray had been used, a house-to-house survey was carried out in twenty representative districts of Birmingham and in seven of Jefferson County. A total of 2,076 families composed of 8,093 inmates were thus canvassed, of whom 5,010, or 61.9 per cent, were sprayed at some time between July 15 and August 22. From a total of 5,097 white people there were 3,545, or 69.7 per cent, who had been sprayed, while of 2,996 colored people 1,465, or 48.9 per cent, had employed the chemicals. Assuming the same rate of spraying for the whole area, it appears that the sprayed and not sprayed groups dealt with approximated 270,000 and 160,000 individuals, respectively. The very young and the older adults sprayed less than the more susceptible age group. Records as to the effects of the chemicals were secured from 4,631 individuals in the Birmingham area who had sprayed from

one to eight or more times. In 3,758 of these there was no complaint, while 885 complained of uncomfortable but not serious conditions, such as headache for from one to thirty-six hours; nausea, usually after the first or second applications; temporary burning of the nose; head colds, and irritation of the nose or eyes. Calculations were confined to paralytic cases, of which sixty-seven were reported from the Birmingham area from June 6 to September 26. Whether the results would have been better had the spraying been carried out more effectively is unknown. The development of poliomyelitis among persons apparently sprayed according to instructions, however, suggests either that the chemicals are not effective for man or that the suggested method of application, which Peet and Schultz have shown effective for monkeys, was not, as practiced, trustworthy for man. The apparent, though small, reduction in the expected number of sprayed patients suggests the latter alternative, and it is possible that the greater nasal distances and larger surfaces to be covered in children are important considerations. The best method for applying the chemicals evidently was not employed in all the prophylactic failures encountered, and it is furthermore probable that the most satisfactory solution has not yet been found. The actual incidence of poliomyelitis in the group sprayed by whatever method was somewhat less than the calculated incidence based on the rate in the unsprayed control group (16:21.7) (Birmingham area).

American Journal of Tropical Medicine, Baltimore

17: 1-136 (Jan.) 1937

Modern Period of Tropical Medicine: Presidential Address of American Academy of Tropical Medicine. R. P. Strong, Boston.—p. 1.
The Problem of Malaria Mortality in the United States. H. E. Meleney, Nashville, Tenn.—p. 15.
History of Activities of the Rockefeller Foundation in Investigation and Control of Yellow Fever. W. A. Sawyer, New York.—p. 35.
Control of Leprosy: The Charles Franklin Craig Lecture of the American Society of Tropical Medicine. E. Muir, London, England. —p. 51.
Sixth Year's Report on Malaria in Panama (Chagres Valley), with Reference to Drug Control. H. C. Clark and W. H. W. Komp, Panama, Republic of Panama.—p. 59.
Standardization of Iodine Stain for Wet Preparations of Intestinal Protozoa. J. S. D'Antoni, New Orleans.—p. 79.
Verminous Aneurysm in Equines of Panama. A. O. Foster and H. C. Clark, Panama, Republic of Panama.—p. 85.
Clinical Studies on Human Lung Fluke Disease (Endemic Hemoptysis) Caused by Paragonimus Westermani Infestation. Z. Bercovitz, New York.—p. 101.

Anatomical Record, Philadelphia

67: 145-270 (Jan. 25) 1937

Vacuolation of Anterior Pituitary Gland Following Castration, Implantation of Cancer Tissue and Thyroidectomy. M. F. Guyer and Pearl E. Claus, Madison, Wis.—p. 145.
*Thoracopagus, One with Harelip and Cleft Palate. S. Sangvichien, Bangkok, Siam.—p. 157.
Hypophyseal Gonadotropic Hormones and Luteinization Phenomenon in Rat. C. A. Pfeiffer, New York.—p. 159.
Unusual Manner of Vascularization of the Brain of Opossum (Didelphys Virginiana). G. B. Wislocki and A. C. P. Campbell, Boston.—p. 177.
Primary Types of Extra-Organic Gross Connective Tissue Structures. E. D. Congdon, Brooklyn.—p. 193.
Alleged Transmigration of Long Tendon of Biceps Brachii. R. M. Neale, Palo Alto, Calif.—p. 205.
Bone Marrow in Monkey (Macacus Rhesus). J. Stasney and G. M. Higgins, Rochester, Minn.—p. 219.
Reproductive Organs of Two Mammalian Hermaphrodites and Their Response to Injections of Pregnant Mare Serum. L. J. Wells, Columbia, Mo.—p. 233.
Use of Trypan Blue in Detecting Cell Death in Perfusion of Mammalian Kidney and Evaluation of Some Modified Ringer-Locke Fluids by This Method. J. M. Darlington, Providence, R. I.—p. 253.

Thoracopagus.—Sangvichien observed a female thoracopagus joined together from the suprasternal notch to the umbilicus. The umbilical cord was single but appeared as the fusion of two cords; at the placental end they were separated for a distance of 40 mm. with amnion left between. The peculiarity of this monster was that one of the twins had harelip and cleft palate, while the other had a normally developed face. The deformity appeared on the left side of the face; the nostril of that side was deformed by the forward and medial inclination of the left medial incisor. When the abdomen was opened the livers were found joined together. From measurement the twins were nearly equal in size and neither could be called the parasite of the other.

Annals of Internal Medicine, Lancaster, Pa.

10: 951-1084 (Jan.) 1937

*Further Studies on Intoxication with Vitamin D. I. E. Steck, H. Deutsch, C. I. Reed and H. C. Struck, Chicago.—p. 951.
*Dietetic Treatment of Constipation, with Especial Reference to Food Fiber. J. L. Kantor and Lenna F. Cooper, New York.—p. 965.
Occurrence of Coronary Thrombosis in Young Individuals. T. M. Durant, Philadelphia.—p. 979.
Estimation of Cardiac Function by Simple Clinical Methods. E. Messinger, St. Cloud, Minn.—p. 986.
Blood Velocity Rate and Venous Pressure in Prognosis of Heart Disease. S. Candel and M. A. Rabinowitz, Brooklyn.—p. 1000.
Complications and Hazards of Fever Therapy: Analysis of 1,000 Consecutive Fever Treatments with Kettering Hypertherm. R. M. Stecher and W. M. Solomon, Cleveland.—p. 1014.
Liver Function in Rheumatoid (Chronic Infectious) Arthritis: Preliminary Report. W. B. Rawls, S. Weiss and Vera L. Collins, New York.—p. 1021.
Medical Poet Laureate, Robert Bridges, M.D., Poet Laureate of England 1913 to 1930. L. H. Roddis, Washington, D. C.—p. 1028.

Studies on Intoxication with Vitamin D.—With the extensive application of massive doses of vitamin D as a therapeutic agent in various clinical conditions, numerous criticisms have arisen which Steck and his associates have summarized as follows: 1. Hypervitaminosis D may produce symptoms of hyperparathyroidism. 2. The therapeutic use of vitamin D is rational only in conditions of known deficiency. 3. Animals experimentally treated with vitamin D concentrates have shown extensive calcium deposits in various tissues, and other pathologic changes have been found. There is, thus, danger of permanent injury to human subjects. Observations on sixty-four dogs and 773 human subjects receiving massive doses of vitamin D have been made and data recorded as to dose per unit of body weight, and on the nature of the process of intoxication. Both human subjects and dogs generally survive the daily administration of 20,000 units per kilogram for indefinite periods without intoxication. Hypervitaminosis D first produces cell injury followed by calcium deposition. This process is reversible and reparable if administration is discontinued promptly, but neither animal nor human subjects in the authors' experience have ever recovered from the toxic condition while administration continued.

Dietetic Treatment of Constipation.—Kantor and Cooper suggest that the diet for constipation should be planned with the same precision as that for diabetes or obesity. In other words the physician should be able to think in quantitative terms about fiber as he does about calories, carbohydrates, fats or proteins. Cowgill's concept of the physiologic fiber minimum should receive due recognition. The fiber content of the more important fruits, vegetables and cereals should be made more generally available to the physician. According to the Cowgill standard of 100 mg. of fiber per kilogram of body weight, a man of 154 pounds (70 Kg.) will normally require 7 Gm. of fiber daily; a woman of 121 pounds (55 Kg.) will need 5.5 Gm. In order to obtain this total, selection may be made in approximately equal portions from each of the three classes of fibrous foodstuffs—fruits, vegetables and cereals. Only bland foods should be selected at the beginning of treatment. 1. From the list of fruits, three varieties may be chosen, preferably one for each meal. Assuming that apples, prunes and bananas are taken, it will be noted that the fiber in three average portions adds up to 2.2 Gm. 2. Four vegetables should be selected, including one serving of potato (0.4 Gm.). If to this are added string beans (1.05 Gm.), spinach (0.45 Gm.) and asparagus (0.35 Gm.), the total from this source becomes 2.25 Gm. 3. For the cereal foodstuffs one whole grain cereal, such as shredded wheat (0.78 Gm.), with perhaps a slice of whole wheat bread (0.36 Gm.), should be taken for breakfast. At each of the other two meals, two slices of bread (0.72 Gm.) may be used. This brings up the total for this group to 2.58 Gm. Other cereal products, such as noodles, cake, pastry and certain puddings, may be substituted for some of the bread. Every effort should be made to avoid colic, distention and other evidences of irritation, since the resulting spasm may serve to increase the fecal stasis. In any regimen for the treatment of constipation, adequate water intake is essential to supply the means by which the fruit and vegetable pectins and galactans soften the feces. The discovery of an active principle in prunes suggests that certain fruits may possess special cathartic properties in addition to their fiber-acid-sugar content.

However, the authors' experiment fails to show unmistakable superiority for prunes, because only five of their nine subjects rated them first in laxation and two reported them least effective as compared with apples and bananas. Cooked apples may be substituted for the raw. Bananas may be served in any way desired, but if eaten raw they must be ripe, since the unconverted starch may cause "indigestion."

Archives of Dermatology and Syphilology, Chicago

35: 203-376 (Feb.) 1937

Shoes: Source of Reinfection in Ringworm of Feet. R. C. Jamieson and Adelia McCrea, Detroit.—p. 203.
Failure of Therapy with Glandular Preparations in Acne Vulgaris. L. McCarthy and O. B. Hunter, Washington, D. C.—p. 211.
*Vesiculobullous Dermatitis Following Administration of Arsphenamine: Report of Case. Kathleen B. Muir, Chicago.—p. 226.
Lymphogranuloma Venereum and Associated Diseases. D. T. Prehn, Canacao, Philippine Islands.—p. 231.
Influence of Avitaminosis A on Experimentally Produced Cutaneous Infections in Rats. T. H. Sternberg and D. M. Pillsbury, Philadelphia.—p. 247.
*Acneform Dermatosis Produced by Ortho (2 Chlorophenyl) Phenol Sodium and Tetrachlorphenol Sodium. M. G. Butler, Saginaw, Mich.—p. 251.
Eruption Resembling Lichen Scrofulosorum Coincident with Nontuberculous Pulmonary Disease. E. T. Bernstein, New York.—p. 255.
Sensitivity to Tryparsamide. J. K. Miller and H. J. O'Donnell, Ingleside, Neb.—p. 264.
Nitritoid Crisis Following Intramuscular Injection of Enesol. H. M. Hedge, Chicago.—p. 267.
Extracellular Cholesterosis. C. W. Laymon, Minneapolis.—p. 269.

Vesiculobullous Dermatitis Following Administration of Arsphenamine.—In Muir's case of vesiculobullous dermatitis following the administration of arsphenamine the initial erythema appeared on the ninth day of arsphenamine therapy suggesting that the eruption may have been the "erythema of the ninth day," although its duration was somewhat longer than usual. A severe neuritis developed during the course of the erythema, and about a week later an unusually severe vesiculobullous eruption ensued. The neuritis can in all probability be interpreted as due to arsphenamine, but its association with subsequent vesicular dermatitis suggests a connection between the two. It is unusual to see an eruption associated with arsenical neuritis; so in all probability the dermatitis in this case should be considered toxic and a manifestation of the general arsphenamine intoxication, as dermatitis may be caused by toxic substances formed elsewhere; for instance, in the liver. The point of action of the toxin on the skin may have been either the epidermis or the dermis. The influence of focal infection on the development of arsenical dermatitis has been been discussed by others. The patient had had salpingo-oophoritis followed a year later by acute gonorrheal salpingitis. During the following year she had chronic iridocyclitis of undetermined origin. In addition to her infections she had also had functional colitis, which indicates a background of neurocirculatory instability, a condition predisposing to sensitization. Death was evidently due to the general toxic degeneration of the vital organs, presumably of arsenical origin, but evidences of infection (pleural abscess and fibrinous peritonitis) suggest that an infectious complication was present.

Acneform Dermatosis Produced by Orthochlorphenol Sodium and Tetrachlorphenol Sodium.—Butler has observed twenty-one cases of an acneform eruption which occurred in persons handling a mixture of ortho (2 chlorophenyl) phenol sodium and tetrachlorphenol sodium. Only persons handling the finished products were affected. These men did not handle or come in contact with any by-products. Other men working in the same building but not coming into direct contact with the agents remained unaffected. In some patients the disorder developed several months after exposure had ceased. The essential lesions were predominantly papulofollicular and were associated with marked hyperkeratosis. Enormous numbers of comedones and numerous sebaceous cysts were present. Secondary pustular lesions from the size of a pea to that of a chestnut were observed. The eruption began with a few papules behind the ears; then it spread to the forehead, cheeks, chin and back of the neck. The scalp, hands and feet were not affected. No reactions occurred in persons who had not been exposed to the chemicals concerned. Patch tests failed to show any epidermal sensitization. Roentgen therapy proved helpful but not curative. These drugs should not be used as fungicidal agents until further investigation reveals the mechanism whereby they produce this dermatosis. The author is of the opinion that a constitutional reaction is involved.

Archives of Internal Medicine, Chicago

59: 175-366 (Feb.) 1937

Diabetic Coma. E. P. Joslin, H. F. Root, Priscilla White, A. Marble and A. P. Joslin, Boston.—p. 175.
Studies of Urobilinogen: II. Urobilinogen in Urine and Feces of Subjects Without Evidence of Disease of Liver or Biliary Tract. C. J. Watson, Minneapolis.—p. 196.
Id.: III. The Per Diem Excretion of Urobilinogen in Common Forms of Jaundice and Disease of Liver. C. J. Watson, Minneapolis.—p. 206.
Clinical Significance of Creatine Reserve of Human Heart. M. Bodansky and J. F. Pilcher, with technical assistance of Virginia B. Duff, Galveston, Texas.—p. 232.
Treatment of Essential and Malignant Hypertension by Section of Anterior Nerve Roots. I. H. Page and G. J. Heuer, New York.—p. 245.
*Recklinghausen's Neurofibromatosis: Clinical Manifestations in Thirty-One Cases. J. C. Sharpe and R. H. Young, Omaha.—p. 299.
Diseases of Metabolism and Nutrition: Review of Certain Recent Contributions. R. M. Wilder and D. L. Wilbur, Rochester, Minn.—p. 329.

Recklinghausen's Neurofibromatosis.—During the last three years, Sharpe and Young have observed thirty-one patients with Recklinghausen's neurofibromatosis. They propose to demonstrate examples of the multiple manifestations of the condition and to emphasize the influence of various physiologic factors and life experiences on the disease. It is suggested that from a congenital or inherited mesodermal abnormality an embryonic tissue arrest is formed, which at birth or during infancy, childhood, puberty or pregnancy may become clinically manifest, depending on its response to the stimulation of the normal physiologic growth factor. This reaction to the influence of physiologic factors and life experiences leads to the progressive and changeable course of the disease. The clinical features that any particular patient may present will be dependent on his age, the congenital factors and his individual sensitivity to stimulating influences. Of all the influences studied in the thirty-one cases, pregnancy produced the most stimulative effect in the progressive course of the disease. Avoidance of pregnancy affords the chief opportunity for control and arrest, as the disease in a large percentage of cases is hereditary and is without beneficial treatment. It is hoped that further attention to the history of the disease during the life of affected subjects, rather than a consideration of the more classic, static, nosologic cross-section of the disease that the patients present at any life period, will be productive of a more helpful management.

Archives of Neurology and Psychiatry, Chicago

37: 223-478 (Feb.) 1937

Newer Aspects of Olfactory Physiology and Their Diagnostic Applications. C. A. Elsberg, New York.—p. 223.
Prostigmin in Treatment of Myasthenia Gravis and Muscular Dystrophy: Results Obtained with Divided Doses. N. W. Winkelman and M. T. Moore, Philadelphia.—p. 237.
Geniculate Neuralgia (Neuralgia of Nervus Facialis): Further Contribution to Sensory System of Facial Nerve and Its Neuralgic Conditions. J. R. Hunt, New York.—p. 253.
*Neurologic Manifestations in Vitamin G (B_2) Deficiency: Experimental Study in Dogs. H. M. Zimmerman, G. R. Cowgill and J. C. Fox Jr., New Haven, Conn.—p. 286.
Neurologic Aspects of Petrositis. J. C. Yaskin and K. Kornblum, Philadelphia.—p. 307.
Cerebral Circulation: XLIV. Vasodilation in Pia Following Stimulation of Vagus, Aortic and Carotid Sinus Nerves. H. S. Forbes, Gladys I. Nason and Ruth C. Wortman, Boston.—p. 334.
Id.: Reaction of Pial Arteries to Fall in Blood Pressure. M. Fog, Copenhagen, Denmark.—p. 351.
Relation of Carotid Sinus to Autonomic Nervous System and Neuroses. E. B. Ferris Jr., Cincinnati; R. B. Capps, Chicago, and S. Weiss, Boston.—p. 365.
Extirpation of Huge Pinealoma from Patient with Pubertas Praecox: New Operative Approach. G. Horrax, Boston.—p. 385.

Neurologic Manifestations in Vitamin G Deficiency.—The basal diet that Zimmerman and his associates employed in their study consisted of an artificially balanced ration which was palatable to the dog and adequate in all known dietary essentials except water-soluble, heat-stable vitamin G (B_2). The experiment was controlled by feeding a second group of dogs the same diet plus 0.1 Gm. of liver extract per kilogram of body weight daily. A third group of animals served as controls for

the inanition factor; each animal was fed daily only as much of the basal ration as his experimental partner had eaten on the preceding day and an adequate amount of vitamin G. In twelve of the fifteen dogs maintained on the deficient ration a slowly progressive disease developed, characterized by loss of weight, vomiting and bloody diarrhea, flaccid muscular weakness, incoordination and decrease of the deep reflexes. Death occurred in from 107 to 599 days. The acute symptoms could be modified and the life of the animal prolonged by the administration of a minimal amount of vitamin G, 0.05 Gm. of liver extract per kilogram of body weight daily. This permitted the gradual development of the neurologic signs to a more marked degree. In each of the twelve control animals receiving an adequate amount of vitamin G, neither the clinical nor the pathologic manifestations of the disease developed. The lesions consist of marked demyelinization of the peripheral nerves and degeneration of their axis cylinders. Many medullary sheaths and axis cylinders of the posterior columns are also destroyed and replaced by gliosis. The degenerative changes in the nervous system are similar to those observed in cases of human pellagra.

Canadian Medical Association Journal, Montreal

36: 111-222 (Feb.) 1937

Further Observations on Use of Protamine Zinc Insulin in Diabetes Mellitus. I. M. Rabinowitch, A. F. Fowler and A. C. Corcoran, Montreal.—p. 111.
Intestinal Absorption in Its Relation to Allergy. R. L. Benson, Portland, Ore.—p. 129.
By-Passing Arterial Blood into Pulmonary Arteries in Treatment of Pulmonary Tuberculosis. R. J. Bennett, Edmonton, Alta.—p. 134.
Diaphragmatic Hernia: Review of Recent Literature and Report on Five Cases. G. H. Stobie, Belleville, Ont.—p. 136.
Apparent Instance of Parathormone Inactivity. F. A. L. Mathewson and A. T. Cameron, Winnipeg, Manit.—p. 141.
Surgical Aspects of Oral Cancer. H. Wookey, Toronto.—p. 148.
Factors in Production of Neuroses. G. K. Wharton, London, Ont.—p. 152.
*Myxedema: Errors in Diagnosis and Treatment. H. D. Kitchen, Winnipeg, Manit.—p. 156.
*Epilepsy in General Practice. R. G. Armour, Toronto.—p. 160.
Psoriasis. H. Orr, Edmonton, Alta.—p. 165.
Erysipelas in Infancy. G. E. White, Windsor, Ont.—p. 169.
Use of Mapharsen in Treatment of Syphilis. S. C. Peterson, Winnipeg, Manit.—p. 172.
Hormone Therapy for Ectopic Testes. A. W. Farmer, Toronto.—p. 174.
Use of Nupercaine in Rhinolaryngology. P. A. Ticktin, Toronto.—p. 176.

Myxedema.—Kitchen believes that, in spite of the well established clinical nature of myxedema, many cases are overlooked for years. Some of the patients one sees do not follow the clinical pattern in detail, and a diagnosis is made with reluctance. The pulse rate may be normal or the blood pressure elevated and the weight not excessive, so the possibility is dismissed. Or occasionally, when doubt exists, a basal metabolic reading may be taken and found to be only minus 18 or 20 and this seems hardly low enough, since minus 35 at least is expected. A low basal metabolic rate is valuable confirmatory evidence, but it should never confuse one's clinical judgment. Then, too, there may be no history of intolerance to cold or undue fatigability, because these people have for years been accustomed to a low threshold of activity and to wearing sweaters in an indoor atmosphere of 80 F. and much extra clothing when venturing outdoors. There is no reason why they should voluntarily mention these facts, as to them these are not ailments but constitute a perfectly normal condition. The greatest source of error in diagnosis, however, arises from the fact that these patients often present themselves for examination because of one particular symptom (menorrhagia, neuritic or joint pains, flatulent dyspepsia, albuminuria, anemia or obstinate constipation) which is so annoying that it banishes thought of any minor discomforts which they may experience. As a result, one is prone to focus attention on the symptom, forgetting the individual, and so it happens that not infrequently he may be treated for anemia, dyspepsia, arthritis, nephritis, constipation or some other complaint, and many months may elapse before the real diagnosis is made.

Epilepsy in General Practice.—Armour warns that young epileptic patients should not be left to "grow out of" the condition. Repeated convulsive attacks in infancy and early childhood probably tend to create or increase an "epileptic potentiality." Perhaps one of the greatest mistakes is to regard epilepsy as exclusively a nervous disease to be treated only by the specialist. Many practitioners are puzzled because they fail to find abnormal physical signs in their examination of the nervous system. More and more are constitutional and metabolic diseases complicated by the epileptic state. Early gastro-intestinal disturbances, neglected and leading to repeated convulsions, would seem to have a great influence in establishing the epileptic potentiality. The headache, dizziness and occasional delirium following sunstroke due to excessive sunbathing must surely indicate vascular disturbances, such as great congestion and edema or even minute hemorrhages. "Epilepsy" is not a disease in itself. It is probably the occasional expression of many different diseases or abnormalities.

Connecticut State Medical Society Journal, New Haven

1: 149-238 (Feb.) 1937

*Protamine Insulin. A. Marble, Boston.—p. 149.
Physiology and Management of Tachycardias. L. H. Nahum and H. E. Hoff, New Haven.—p. 154.
Use of Rogers Method in Treating Uncomplicated Compression Fractures of Spine. F. S. Jones, Hartford.—p. 159.
Clinical Aspects of Thyroid Disease. A. S. Taylor, Clifton Springs, N. Y.—p. 172.
Limitations of Pneumothorax Therapy in Lobar Pneumonia. F. G. Blake, New Haven.—p. 178.
Broader Aspects of Psychiatry. C. C. Burlingame, Hartford.—p. 181.
Fellow of the American Medical Association. C. Barker, New Haven.—p. 196.
Some Every Day Rectal Problems. A. R. Keith, Hartford.—p. 199.
Early Motion in Fracture Treatment. M. K. Lindsay, New Haven.—p. 207.

Protamine Insulin.—Marble believes that protamine insulin in its present or in an even more perfected form has come to stay, or at least that some slowly acting preparation closely akin to it will in the future form a valuable part of the physician's armamentarium. With it there is a means of controlling diabetes for twenty-four hours of the day. Protamine insulin can be used with benefit in practically every case. In the author's experience the best results have been obtained with protamine insulin to which a trace of zinc has been added. The insulin and the protamine solution, kept separately, are stable indefinitely. Many patients, including all mild and some of the moderately severe cases, can be controlled on one daily dose of protamine insulin alone. There is little or no evidence to indicate that the small amounts of zinc present in protamine zinc insulin may give rise to toxic effects.

Georgia Medical Association Journal, Atlanta

26: 45-90 (Feb.) 1937

Tumors of Adult Kidney: Report of Cases. E. Floyd and J. L. Pittman, Atlanta.—p. 45.
Use of Atabrine and Plasmochin in Control and Treatment of Malaria. M. E. Winchester, Brunswick.—p. 54.
*Psychosis Following Administration of Atabrine for Malaria. E. W. Allen, H. D. Allen Jr. and C. B. Fulghum, Milledgeville.—p. 62.
Tuberculosis of Skin Rosacea-like Type: Report of Case. H. Hailey, Atlanta.—p. 68.
Surgical Correction of Crossed Eyes. W. O. Martin Jr., Atlanta.—p. 70.
Disease of Respiratory and Upper Alimentary Tracts: Endoscopy as an Aid to the General Practitioner. B. M. Cline, Atlanta.—p. 74.
Dysentery (Infectious Diarrhea) in Children. W. W. Anderson, Atlanta.—p. 78.
Collapse Therapy in Pulmonary Tuberculosis. D. C. Elkin, Atlanta.—p. 81.

Psychosis Following Administration of Atabrine for Malaria.—The Allens and Fulghum observed nine patients who presented evidence of toxic psychosis in which atabrine was the principal causative factor. Five of these patients showed wild excitement closely resembling the manic type, two showed mild excitement with confusion, and two showed almost no excitement but severe confusion. Only four of the nine patients had had previous nervous or mental symptoms: one had been mildly excited over religion, one had an undescribed nervous episode when young, another had a psychopathic personality and one had an undiscovered paresis. Six patients had associated physical conditions that could have been predisposing factors. Five of the nine patients had had quinine in addition to atabrine. Only one patient failed to develop yellow pigmentation. Distress of the upper part of the abdomen occurred in one third of the series and was always the high, transverse,

colon type of distress. Further proof of this relationship must await appropriate chemical studies of the excretion of the drug, such as the glacial acetic acid test of the urine for delayed excretion. Other factors that may delay excretion should be watched for while the patient is under active treatment, such as constipation, kidney insufficiency, insufficient liquid intake or loss of blood liquids that may result from insufficient nourishment, high fever, excessive exercise and sweating. Yellow pigmentation is a warning complication. Evidently the pigmentation can be seen only in the skin of the lightest colored races. The dosage of atabrine should perhaps be more closely correlated to body weight. The three patients who took less than 25 mg. of atabrine per kilogram of body weight had symptoms for less than three days. Each patient with manic depressive symptoms, even though transient, should be followed up over a period of years to learn whether attacks recur independent of atabrine.

Journal of Bacteriology, Baltimore

33: 1-122 (Jan.) 1937

Viruses and Koch's Postulates. T. M. Rivers, New York.—p. 1.

33: 123-242 (Feb.) 1937

Cell Size and Metabolic Activity at Various Phases of Bacterial Culture Cycle. Evelyn Huntington and C.-E. A. Winslow, New Haven, Conn. —p. 123.

Comparison of Metabolic Activities of Aerobacter Aerogenes, Eberthella Typhi and Escherichia Coli. C. E. Clifton, Stanford University, Calif.—p. 145.

Facultative Sporulating Bacteria Producing Gas from Lactose. R. Porter, C. S. McCleskey and M. Levine, Ames, Iowa.—p. 163.

Acid Production by Escherichia-Aerobacter Group of Bacteria as Indicated by Dissolved Metallic Iron. A. V. Syrocki, J. E. Fuller and R. L. France, Amherst, Mass.—p. 185.

Occurrence of Salmonella, Senftenberg Type, in Disease of Turkeys. P. R. Edwards, Lexington, Ky.—p. 193.

Reaction with Iron Compounds for Determination of Bacillus Anthracis and of Its Pathogenicity. E. De Angelis, Morgantown, W. Va.—p. 197.

Growth Factors for Bacteria: III. Some Nutritive Requirements of Lactobacillus Delbrückii. E. E. Snell, E. L. Tatum and W. H. Peterson, Madison, Wis.—p. 207.

Id.: IV. Acidic Ether-Soluble Factor Essential for Growth of Propionic Acid Bacteria. H. G. Wood, E. L. Tatum and W. H. Peterson, Madison, Wis.—p. 227.

Journal of Experimental Medicine, New York

65: 177-316 (Feb.) 1937

Production of Blood Platelets in Lungs. W. H. Howell and D. D. Donahue, Baltimore.—p. 177.

*Effects of Gonadotropic Hormones in Treatment of Experimental Tuberculosis. M. M. Steinbach and S. J. Klein, New York.—p. 205.

Immunization of Rabbits to Infectious Papillomatosis. R. E. Shope, Princeton, N. J.—p. 219.

Studies on Experimental Hypertension: II. Effect of Resection of Splanchnic Nerves on Experimental Renal Hypertension. H. Goldblatt, J. Gross and R. F. Hanzal, Cleveland.—p. 233.

Immunologic and Chemical Investigations of Vaccine Virus: VI. Isolation of Heat-Stable, Serologically Active Substance from Tissues Infected with Vaccine Virus. R. F. Parker and T. M. Rivers, New York.—p. 243.

Antibody Response of Human Subjects Vaccinated with Virus of Human Influenza. T. Francis Jr. and T. P. Magill, New York.—p. 251.

Inheritance of Resistance of Mice to Enteric Bacterial and Neurotropic Virus Infections. L. T. Webster, New York.—p. 261.

Experimental Production of Hemorrhage and Vascular Lesions in Lymph Nodes: Extension of Shwartzman Phenomenon. L. H. Koplik, New York.—p. 287.

*Rapid Invasion of Body Through Olfactory Mucosa. G. Rake, New York.—p. 303.

Gonadotropic Hormones in Treatment of Experimental Tuberculosis.—Of all the animals treated with antuitrin-S (six rabbits and seventeen guinea-pigs) by Steinbach and Klein, only two guinea-pigs failed to show less tuberculosis than did the corresponding controls. Gonadotropic substance, which contains the same principle, also proved of value in retarding the progress of disease. It appears possible that the poorer results obtained with gonadotropic substance may be due to the high concentration of glycerol present in this preparation. Long and Vorwald have shown that injection of glycerol enhances the multiplication of tubercle bacilli in rats. Pregnant mare serum, which is a rich source of gonadotropic substance, proved efficacious in retarding tuberculosis. Anterior pituitary extract proved of no value in retarding the progress of the disease, and in many instances animals treated with this substance showed more tuberculosis than did the controls. Placental extract (emmenin) given by mouth was likewise entirely ineffective in preventing progress of the disease. The results obtained suggest that the gonadotropic principle which appears during pregnancy may be an important factor in the increased resistance displayed by the pregnant tuberculous woman. The breakdown of this resistance that occurs during the later stages of pregnancy may perhaps be correlated with the diminution of this hormone, which begins after about the fifth or sixth month and ends with the entire disappearance of the hormone a few days after delivery.

Rapid Invasion of Body Through Olfactory Mucosa.—Rake observed that prussian blue particles pass rapidly from the surface of the olfactory mucosa and within two minutes are found in the tissue spaces, in blood and lymph vessels, in the perineural spaces of the olfactory nerve fibers and in the subarachnoid space and pia-arachnoid membrane. Preliminary treatment of the olfactory mucosa with tannic acid does not alter the speed with which this absorption occurs. It does, however, cause an inflammation of the mucosa and appears to prevent the pigment from entering the olfactory sensory cells. Both pneumococci and Salmonella enteritidis pass through the olfactory mucosa and reach the tissue spaces, the vessels and the subarachnoid space with the same rapidity as the pigment. They invade by passage between the cells of the mucosa and there is no apparent affinity of the organisms for the olfactory sensory cells. Tannic acid treatment of the olfactory mucosa in no way alters this invasion of organisms through the mucosa. The pantropic virus, equine encephalomyelitis, was detected in the forebrain as promptly as were pigment and bacteria; neurotropic viruses, however—those of St. Louis encephalitis, rabies and louping ill—were not demonstrated in less than twenty-four hours.

Journal of Pharmacology & Exper. Therap., Baltimore

59: 123-240 (Feb.) 1937

Studies on Chemotherapeutic Action: I. Absorption of Arsenical Compounds and Tartar Emetic by Normal and Resistant Trypanosomes and Its Relation to Drug Resistance. F. Hawking, Cardiff, Wales.—p. 123.

Trypanocidal Activity and Arsenic Content of Cerebrospinal Fluid After Administration of Arsenic Compounds. F. Hawking, T. J. Hennelly and J. H. Quastel, Cardiff, Wales.—p. 157.

Action of Dichloro-Difluoro-Methane on Nervous System of Cat. C. Brenner, Boston.—p. 176.

Preparation of Ferrous Gluconate and Its Use in Treatment of Hypochromic Anemia in Rats. P. Reznikoff and W. F. Goebel, New York. —p. 182.

Influence of Cold on Calorigenic Action of Dinitrophenol. V. E. Hall, J. M. Crismon and P. E. Chamberlin, Stanford University, Calif.—p. 193.

Solubility Coefficients of Cyclopropane for Water, Oils and Human Blood. F. S. Orcutt and M. H. Seevers, Madison, Wis.—p. 206.

Analysis of Action of Posterior Pituitary Extracts on Uterus. T. N. Morgan, Aberdeen, Scotland.—p. 211.

Pyruvic Acid Cyanohydrin as Respiratory Stimulant: Study of Cyanide Action. E. K. Marshall Jr. and M. Rosenfeld, Baltimore.—p. 222.

Journal of Urology, Baltimore

37: 249-334 (Feb.) 1937

Surgical Procedures in Neurodynamic Pathology of Upper Urinary Tract. W. P. Herbst, Washington, D. C.—p. 249.

*Study of Recurrence Following Operations for Nephrolithiasis. F. P. Twinem, New York.—p. 259.

Primary Vesical Calculus. A. C. Siddall, Oberlin, Ohio.—p. 268.

Huge Bladder Calculus with Chewing Gum Core. J. A. McKenzie, Miami, Fla.—p. 280.

Alkaline Incrusted Cystitis. A. Randall and E. W. Campbell, Philadelphia.—p. 284.

Cocaine Absorption in Urethra and Bladder: Report on Quantitative Determinations. E. Rupel and R. N. Harger, Indianapolis.—p. 300.

Treatment of Hydrocele and Similar Scrotal Cysts by Injection Method. M. M. Mayers, Los Angeles.—p. 308.

Hydrogen Ion Concentration of Seminal Fluid from Sterile Men. F. C. Messer and B. R. Almquest, Pittsburgh.—p. 319.

Maximal Intrapelvic Pressure (Secretion Pressure) of Kidney of Dog. J. R. McDonald, F. C. Mann and J. T. Priestley, Rochester, Minn. —p. 326.

Another Modification of Young's Punch. H. L. Tolson, Cumberland, Md.—p. 333.

Study of Recurrence Following Operations for Nephrolithiasis.—Twinem reviewed 314 cases of operation for nephrolithiasis. The percentage of recurrence following pyelotomy was 20.9 and the percentage of recurrence following nephrotomy, 28. The greater incidence following nephrotomy agrees with the results of other investigators, but this point should

be interpreted with some qualification since the type of operation originally selected depends on the size, shape, number and location of the stones. The percentage of recurrence following operations for multiple stones was greater than that following operations for single stones. The frequency of pseudorecurrence is considerable and, to avoid this possibility, roentgenograms should be taken on the operating table particularly in cases of multiple and staghorn calculi. Heminephrectomy should probably be employed more frequently than it has been by most operators. The low percentage of recurrence in the opposite kidney following both nephrectomy and conservative operation indicates the importance of local factors in stone formation. Phosphatic calculi were found to recur more frequently than calculi of other composition, except those composed of cystine. The ten cases most frequently recurring were all either primarily or secondarily infected. The importance of Bacillus proteus in these persistently recurring cases is emphasized. The possibility of the presence of hyperparathyroidism should be investigated, particularly in the bilateral and recurring cases.

Kansas Medical Society Journal, Topeka

38: 45-88 (Feb.) 1937

Surgical Treatment of Goiter. G. B. Kent and K. C. Sawyer, Denver.—p. 45.
Some Pitfalls in Pathologic Diagnosis of Cancer. F. C. Helwig, Kansas City, Mo.—p. 50.
Narcolepsy. G. O. Speirs and R. E. Speirs, Spearville.—p. 54.
Practical Discussion of the Silicosis Problem. O. A. Sander, Milwaukee.—p. 57.

Maine Medical Journal, Portland

28: 25-42 (Feb.) 1937

Public Health Activities and the Physician. B. L. Arms, Farmington.—p. 25.
Crippled Children's Program: Calendar Year Ending Dec. 31, 1936. H. R. Kobes, Augusta.—p. 27.
Ocular Syphilis. H. F. Hill, Waterville.—p. 29.
Serology of Syphilis. A. H. Morrell, Augusta.—p. 31.

Medicine, Baltimore

16: 1-94 (Feb.) 1937

Pathogenesis of Uremic Syndrome. T. R. Harrison and M. F. Mason, Nashville, Tenn.—p. 1.
Tuberculous Pericarditis. A. M. Harvey and M. R. Whitehill, Baltimore.—p. 45.

Minnesota Medicine, St. Paul

20: 71-134 (Feb.) 1937

*Value of Electrolyte, Water and Acid Base Balance Studies in Renal Disease. G. M. Piersol, Philadelphia.—p. 71.
Histology of Pineal Gland and Its Probable Physiologic Function. A. M. Hanson, Faribault.—p. 78.
Principles in Medical Treatment of Head Injuries. B. L. Gifford, Long Prairie.—p. 81.
Chronic Suppurative Otitis Media. H. L. Williams, Rochester.—p. 85.
Acute Surgical Mastoiditis. F. G. Folken, Albert Lea.—p. 90.
Severe Cutaneous Reactions to Barbiturates S. E. Sweitzer and C. W. Laymon, Minneapolis.—p. 92.
Tularemia with Low Agglutination Titer Disappearing After Serum Therapy. R. L. Nelson, Duluth.—p. 97.
Sedimentation Rate in General Practice. W. A. Merritt, Albert Lea.—p. 99.
Some Observations on Focal Infection. L. I. Younger, Winona.—p. 101.
Simple Method of Transfusion in Infants. L. C. Barr, Albert Lea.—p. 104.

Electrolyte, Water and Acid Base Balance Studies in Renal Disease.—Piersol discusses only vascular renal disease. Whether the primary lesion involves the capillaries of the glomerular tufts or the endothelium of the afferent arterioles to the glomeruli, the ultimate effect is to disturb normal renal function. When the principal changes are in the arterioles, the vascular disturbance is by no means confined to the kidneys but is a systemic involvement. There is no symptom complex associated with renal insufficiency that is of more clinical importance than the phenomena called uremia. The clinical manifestations of true uremia are correlated in some way with retention in the blood of waste products that should have been eliminated by the kidneys. The most serious and lethal manifestation of true uremia is uremic coma always with definite acidosis. There is no relationship between uremic coma and the height of the blood urea. In acidosis of renal origin there is a decrease in the plasma carbon dioxide combining power and an increase in the inorganic phosphates and sulfates of the blood. There may be associated reduction of total base and "starvation ketosis." When systemic blood pressure in a patient with chronic nephritis falls to a level below the effective glomerular filtration pressure, renal function will be impaired markedly and uremic coma may result. Cases of hypochloremia with high blood urea are often mistaken for true uremia. The hyperazotemia and increased plasma carbon dioxide are part of a compensatory mechanism for the maintenance of osmotic pressure of body fluids. Unless hypertension preexists, these cases will show no elevation of blood pressure; on the contrary, there is often a lowered blood pressure. Chronically diseased kidneys eliminate sodium chloride only in low concentration. Even when no edema is present, it is important to regulate the sodium chloride intake so as to preserve a normal electrolyte level in order to maintain a normal osmotic pressure. Water intake in a nephritic patient must be regulated in accordance with the electrolyte level, the quantity of total plasma proteins present and the efficiency of the myocardium. The maximal amount possible under the existing conditions should be given. The patient with chronic vascular nephritis in whom the condition is no longer progressive may live in reasonable comfort if properly standardized and maintained in water, sodium chloride, alkali and protein balances. In the more acute progressive cases this cannot be done successfully.

New England Journal of Medicine, Boston

216: 193-232 (Feb. 4) 1937

Incidence of Alcoholic Psychoses in Massachusetts, 1917-1935. R. H. Guthrie and N. A. Dayton, Boston.—p. 193.
Spontaneous Internal Biliary Fistulas: Review and Report of Two Cases. W. S. Altman, Quincy, Mass., and E. A. Field, Boston.—p. 199.
Oxygen in Treatment of Coronary Occlusion in the Home. A. M. Burgess and F. H. Chafee, Providence, R. I.—p. 203.
Transient Hemiplegia Accompanying Lobar Pneumonia: Report of Case. B. Zolov, Portland, Maine.—p. 206.

Oklahoma State Medical Assn. Journal, McAlester

30: 1-38 (Jan.) 1937

Ketogenic Treatment of Bacilluria. A. L. Clark, M. R. Everett, M. F. Jacobs, H. D. Moor and Marjorie Audrey Sewell, Oklahoma City.—p. 1.
Oral Roentgenology. E. D. Greenberger, McAlester.—p. 6.
Mental Aspects of the Menopause. C. H. Campbell, Oklahoma City.—p. 12.
Severe Emotional Disturbance Considered as a Factor in Etiology of Acute Pancreatitis. W. P. Neilson, Enid.—p. 14.
Duty of the Family Physician in Presence of Positive Tuberculin Test. L. J. Moorman, Oklahoma City.—p. 17.
Suprarenal Denervation for Malignant Hypertension. R. Q. Atchley, Tulsa.—p. 18.

Southern Surgeon, Atlanta, Ga.

6: 1-96 (Feb.) 1937

Some Fallacies in Regard to Ectopic Pregnancy. J. C. Litzenberg, Minneapolis.—p. 1.
Evaluation of Excretory Urography. J. U. Reaves, Mobile, Ala.—p. 15.
Tumors of the Neck. A. E. Hertzler, Halstead, Kan.—p. 20.
*Obscure Digestive Disturbances Caused by Lesions of Lower Portion of Esophagus. P. P. Vinson, Richmond, Va.—p. 33.
James Marion Sims: The Father of Modern Gynecology. S. Harris, Birmingham, Ala.—p. 35.
*Osteomyelitis of Skull. E. F. Fincher Jr., Atlanta, Ga.—p. 53.

Lesions of Lower Portion of Esophagus.—Vinson states that too frequently it is assumed that indefinite digestive discomfort characterized by distress after meals, gas, fulness in the epigastrium and epigastric pain are the result of disease in the gallbladder. Examination of almost every gallbladder removed at operation will reveal evidence of infection, and the physician and the patient will be disappointed when removal of that organ fails to relieve distress that was thought to be the result of cholecystitis. A more careful preoperative consideration of the esophagus and cardiac portion of the stomach in patients suffering from obscure digestive discomfort will eliminate many errors in diagnosis and decrease the frequency of the useless operations on the stomach and gallbladder. Dysphagia is the most frequent symptom of esophageal disease. Carcinoma of the esophagus and cardiac portion of the stomach is usually associated with dysphagia. Epigastric pain is fre-

quently an early symptom in cardiospasm and may be present for many months or years before other symptoms appear. Inflammation involving the lower portion of the esophagus may be associated with burning beneath the sternum and hematemesis. In the acute stage such inflammation can rarely be differentiated from acute gastritis and, if it becomes chronic, the symptoms may simulate those of peptic ulcer. Healing of the ulceration may result in the formation of a stricture with associated dysphagia. Benign tumors of the esophagus are rarely observed and do not produce symptoms of obstruction until they have attained considerable size. Hernia of a portion of the stomach through the esophageal hiatus in the diaphragm is so closely associated with the esophagus that it can be considered an esophageal lesion.

Osteomyelitis of Skull. — Fincher gives a number of detailed facts concerning the development, course, treatment and results of osteomyelitis of the skull. Individual case reports of variable etiologic background, illustrating the problems and management of these cases, are presented. There are a few instances in which the extensiveness of the disease and the associated debilitating effects on the patient prohibited radical surgical efforts. The complications and sequels of the disease are all so dangerous that early recognition is the answer for prevention, and radical surgical removal of all infected skull is the choice of treatment.

Southwestern Medicine, Phoenix, Ariz.

21: 1-38 (Jan.) 1937

The "Gastric" Invalid. J. J. Gorman, El Paso, Texas.—p. 1.
Fever Therapy. H. M. Purcell, Phoenix, Ariz.—p. 4.
Blood Transfusion. G. Turner and D. Von Briesen, El Paso, Texas.—p. 7.
Acute Mastoiditis. M. P. Spearman and W. E. Vandevere, El Paso, Texas.—p. 9.
Cisternal Puncture. W. C. Menninger, Topeka, Kan.—p. 10.
Finding the Case of Tuberculosis. L. A. Dewey, Santa Fe, N. M.—p. 13.
What Every Physician Should Know About Allergy. O. H. Brown, Phoenix, Ariz.—p. 14.

West Virginia Medical Journal, Charleston

33: 49-96 (Feb.) 1937

Natural History of Syphilis. F. C. Hodges, Huntington.—p. 49.
Early Diagnosis of Syphilis. H. T. Phillips and J. C. Kerr, Wheeling.—p. 55.
Treatment of Early Syphilis. W. M. Sheppe, Wheeling.—p. 58.
Syphilis in Infancy and Childhood. G. M. Lyon, Huntington.—p. 62.
*Syphilis and Pregnancy. W. W. Point, Charleston.—p. 70.
Public Health Control of Syphilis. H. B. Robins, Charleston.—p. 73.

Syphilis and Pregnancy.—Point declares that seventy-five out of 100 syphilitic children die within the first year of life (Adams), generally within the first week, and are always an easy prey to infections and intestinal disturbances. The remaining 25 per cent have latent syphilis, which manifests itself usually before the nineteenth year. The generally accepted theory today is that the disease is always transmitted from the mother to the child in utero by way of the placental circulation. Therefore syphilis is congenital and not hereditary. Spirochetal manifestations in the fetus depend on the duration of the mother's syphilis and the stage of the development of the fetus. If infection of the mother takes place a short time before conception, the fetus is almost certain to die in utero. The longer the mother has syphilis before conception, the more probable is the birth of a macerated fetus, a premature child, a stillborn child or a living child with latent syphilis. Syphilitic abortions do not occur before the fourth month; at least, spirochetes have never been found in such early stages of the placenta. Every syphilitic gravida must be treated, regardless of the amount of treatment received before conception and irrespective of the absence of symptoms. The same treatment is required in each succeeding pregnancy. The earlier in pregnancy treatment is instituted, the greater are the chances for the birth of a living and healthy child. No matter how late in pregnancy maternal syphilis is recognized, intensive, systematic treatment must be given. The arsenicals have definitely proved their superiority over mercury for this prophylactic purpose. Abortion or fetal death need not be feared from intravenous injection.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal

53: 187-268 (Winter) 1936

Somerset Lake Villages. A. Bulleid.—p. 187.
Abdominal Pain in Childhood. W. Sheldon.—p. 219.
*Treatment of Tobacco Amblyopia by Acetylcholine. B. H. Cragg.—p. 237.
History of the Bristol Medical Dramatic Club. A. L. Flemming.—p. 239.

Treatment of Tobacco Amblyopia by Acetylcholine.—Since July 1936 Cragg has treated five male patients suffering from tobacco amblyopia by the intramuscular injection of acetylcholine bromide. This drug is available in two doses, dose A being 0.03 Gm. and dose B 0.125 Gm. Each patient first received two injections of dose A with one clear day's interval between, and then a daily injection of dose B until no further treatment was considered necessary or until improvement ceased. In addition, patients 4 and 5 were given 1/150 grain (0.004 Gm.) of physostigmine sulfate daily by mouth, following the suggestion that the action of acetylcholine is enhanced by minute doses of this drug. The results were encouraging: treatment by this method gives more rapid improvement in vision. The patient in most cases realizes that overindulgence in tobacco has been the cause of his defective vision.

British Medical Journal, London

1: 57-104 (Jan. 9) 1937

The Progress and Present Aspect of Medical Science. R. Hutchison.—p. 57.
*Autogenous Urinary Proteose in Asthma and Other Allergic Conditions. J. Libman and A. D. Bigland.—p. 62.
Value of Oleothorax in Obliterative Pleurisy. F. G. Chandler.—p. 65.
Infective Hepatic Jaundice. H. Barber.—p. 67.
Recurrent Extragenital Hemorrhages. W. H. Gossip.—p. 69.
The Friedman Test in Hydatidiform Mole and Chorionepithelioma. P. Lazarus-Barlow.—p. 71.

Autogenous Urinary Proteose in Asthma.—In assessing the therapeutic effects of proteose, Libman and Bigland realized that even if proteose was not specific in its action, as claimed by Oriel, some therapeutic benefit might be obtained, as often happens with nonspecific injections. Proteose was administered to a series of fifty-eight patients, composed of forty-eight cases of asthma and ten cases of various allergic skin conditions. Autogenous proteose was prepared from the urine in every case. The investigations tend to confirm the view that the zone of erythema obtained at the site of intradermal injection of urinary proteose is probably nothing more than a local toxic reaction and is not in any way specific. The therapeutic benefit obtained with injections of autogenous urinary proteose in cases of asthma is about the same as that obtained with peptone. Any specificity that may be claimed for the former method does not outweigh the many advantages of a simpler and more general form of desensitization such as can be obtained with peptone. Treatment with peptone can be begun at any time, no laboratory preparation is necessary, the same degree of therapeutic value is obtained, and the treatment is relatively cheap.

Glasgow Medical Journal

9: 1-52 (Jan.) 1937

Convulsions in Acute Nephritis in Childhood. J. B. Rennie.—p. 1.
Plea for Planned and Fuller Medical Specialism, with Addendum on Necessity for Reintegration of Medical Profession. J. I. Cameron.—p. 18.

Irish Journal of Medical Science, Dublin

No. **132:** 709-756 (Dec.) 1936

Some Antique Stones. W. Doolin.—p. 709.
Provision of Medical Terms in Irish. T. J. MacKinney.—p. 722.
Current Views on Diabetes Insipidus. J. D. H. Widdess.—p. 736.
Diabetes Insipidus Influenced by Partial Thyroidectomy: Case. A. A. McConnell.—p. 742.
Pentothal Sodium in Obstetrics. E. Solomons.—p. 746.

Journal of Tropical Medicine and Hygiene, London

40: 1-12 (Jan. 1) 1937

Nematode Worm Passed in Stools by a Patient Suffering from an Irregular Pyrexia of Obscure Origin. A. J. Noronha.—p. 1.
Diseases of Skin in Negroes. L. J. A. Loewenthal.—p. 4.

Lancet, London

1: 67-124 (Jan. 9) 1937

*The Nose and Throat in Relation to Rheumatic Diseases. H. Barwell.—p. 67.
Choline Esterase Activity in Disease, with Especial Reference to Myasthenia Gravis. M. McGeorge.—p. 69.
Carcinoma of Cervical Esophagus. R. Pilcher.—p. 73.
Pernicious Anemia After Nitric Acid Corrosion of Stomach. G. Alsted.—p. 76.
Pulmonary Fibrosis in Children: Report of Twenty-Three Cases. M. O. Raven.—p. 80.
Oxygen Administration: Further Observations. J. A. Campbell.—p. 82.
Internal Pneumolysis: A Further One Hundred Consecutive Operations. F. G. Chandler.—p. 83.

The Nose and Throat and Rheumatic Fever.—According to Barwell, an attack of acute rheumatism or rheumatic fever is normally preceded by an acute infection of the fauces with a hemolytic streptococcus, which often is only of slight severity. It is usually a clinically mild and transient infection of the throat that precedes the most severe attacks of rheumatic fever. After this there is a symptom-free interval of from a few days to a few weeks before the onset of rheumatic symptoms. Further attacks, or recurrences, of acute rheumatism are similarly preceded by streptococcic pharyngitis. There is little room for doubt, then, that acute rheumatism is caused by streptococcic infection, but the mechanism by which the effect is produced is still uncertain. It does not appear to be a septicemia, and suppuration never occurs; it seems rather to be related to a faulty method of dealing with bacterial toxins. There seems to be a definite delay in the immune responses of rheumatic, compared with those of nonrheumatic, people, and the patient who develops an attack of rheumatic fever "handles the products of the hemolytic streptococcus in a peculiar way" (Coburn). It would seem to be this peculiar response which determines the incidence of acute rheumatism. The incidence of acute infection of the fauces is diminished by tonsillectomy. When, therefore, a sore throat has been followed by rheumatic fever, it is proper that the tonsils should be removed. But numerous smaller nodules of lymphoid tissue remain scattered over the pharynx, and acute pharyngitis can and does occur after tonsillectomy, so that this operation does not with certainty prevent recurrence of acute rheumatism, though it makes it less probable.

Medical Journal of Australia, Sydney

2: 839-872 (Dec. 19) 1936

Determination of Blood Compatibility Before Blood Transfusion and Avoidance of Subsequent Reactions. Hilda J. Gardner.—p. 839.
Technic of Continuous Intravenous Administration of Glucose-Saline Solutions and Blood. I. J. Wood.—p. 843.
Plastic Surgery to the Face for Deformity and Contractures After Nitric Acid Burns. R. A. Money.—p. 848.
The Specialist Anesthetist: Has He Improved the Standard of Anesthesia? R. H. Orton.—p. 853.

2: 873-900 (Dec. 26) 1936

Fractures of Lower End of Humerus and Their Complications. S. H. Scougall.—p. 873.
Fractures Around the Elbow Joint. L. Buchanan.—p. 881.

Tubercle, London

18: 145-192 (Jan.) 1937

Studies of Properties of Some Strains of Tubercle Bacillus. E. M. Fraenkel and R. J. V. Pulvertaft.—p. 145.
Chronic Miliary Tuberculosis. L. Sayé.—p. 153.
Relationship Between Moist Weight and Numbers of Total and Viable Organisms in Cultures of Tubercle Bacilli. G. S. Wilson and Herta Schwabacher.—p. 161.
Prophylaxis of Severe Reactions in Gold Salt Therapy. J. Wilson.—p. 168.

Chinese Medical Journal, Peiping

50: 1707-1898 (Dec.) 1936

Benign Hypertrophy of Prostate. H. L. Chang and G. Y. Char.—p. 1707.
*Studies on Transmission of Relapsing Fever in North China: I. Preliminary Observations. H.-L. Chung.—p. 1723.

Transmission of Relapsing Fever in North China.—Chung declares that the majority of patients with relapsing fever seen at the Peiping Union Medical College Hospital harbor human body lice. This fact together with the geographic, climatic and other epidemiologic factors lends support to the view that relapsing fever in North China is essentially a louse-borne disease. The fact that he has been successful in recovering spirochetes from body lice captured from patients constitutes evidence in favor of this view. That bedbugs may play a part in the spread of relapsing fever has not received due attention. It is likely that, when a systematic examination is made of bedbugs recovered from the belongings of relapsing fever patients, infected bugs will be found more often than would be anticipated. The author has shown that bedbugs can be infected with Spirochaeta recurrentis by feeding on Chinese squirrels experimentally infected with relapsing fever. Spirochaeta recurrentis can survive at least twenty-five and one-half hours in bedbugs and remain virulent for the squirrel. Bedbugs may serve as vectors in the spread of the disease. Infection can take place easily through contact of the organisms with the normal skin or mucous membranes.

Journal of Oriental Med., Dairen, South Manchuria

25: 91-124 (Dec.) 1936

Sweating During Running. I. Iwatake.—p. 91.
Influence of Intake of Salts on Metabolism at High Surrounding Temperature. S. Ito.—p. 93.
Insensible Perspiration from Surface of Blister. K. Takahara.—p. 94.
Sweat Secretion of Children. J. Adachi.—p. 95.
Sweating Due to Inhalation of Carbon Dioxide in Man. J. Adachi.—p. 97.
Sweat Reflexes Due to Changes in Posture of Human Body: II. Changes in Sweating on Lying and Standing. K. Ogata and T. Ichihashi.—p. 98.
Changes in Human Insensible Perspiration Due to Exposure to Cold. T. Yabuki.—p. 100.
Effect of Drugs on Sweat Glands by Cataphoresis, and an Effective Method for Suppression of Local Sweating: I. Observations on Effect of Diaphoretics and Adiaphoretics. T. Ichihashi.—p. 101.
Id.: II. Paths of Cataphoresis in Skin, and Influence of Perspiratory Conditions on Cataphoretic Effect. T. Ichihashi.—p. 103.
*Id.: III. Antisudorific Effect of Formalin by Cataphoretic Application, and Its Practical Use. T. Ichihashi.—p. 105.
Method of Observing Sweat Drops on Skin Covered with Oil, and Several Observations with This Method. T. Ichihashi.—p. 107.
Changes in Human Sweating During Sleep. T. Kosuge.—p. 109.
Experiments on Effect of Diaphoretics and Adiaphoretics. K. Kashiwabara.—p. 111.
Anhidrotic Phenomena of Febrile Cat. K. Kashiwabara.—p. 116.
Plethysmographic Observations on Reflex Changes in Skin Vessels. K. Takahara and T. Yabuki.—p. 117.
Changes in Human Arterial Pressure Due to Exposure to Cold. T. Ichihashi.—p. 119.
Functional Variations in Human Sweat Glands: II. Comparative Study of Sweating Due to Exposure to Heat and That Caused by Pilocarpine. K. Ogata.—p. 120.
Some Preliminary Experiments on Significance of Wetness Inside Shoes on Occurrence of Frost-Bite. T. Ichihashi.—p. 121.
Racial Variations in Sweat Secretion on Axilla. K. Kashiwabara and K. Ogata.—p. 122.

Method for Suppression of Local Sweating.—Ichihashi used repeated applications of formaldehyde by cataphoresis for the treatment of hyperhidrosis. This was done with great success in thirteen patients suffering from excessive hyperhidrosis of the palms and soles, seven suffering from hyperhidrosis of the axilla and fifteen who suffered from osmidrosis. It was especially successful in the case of palmar hyperhidrosis. A treatment consisting of three or four cataphoretic applications stopped the suffering entirely for at least one and one-half months, sometimes longer than two months. But strong hornification of the skin, followed by desquamation, occurred in the treated region of the skin. In the axilla, a strong application, such as to cause desquamation, could not be used. But the hyperhidrotic suffering could be cured for about one month or longer by a series of applications. In osmidrosis, this treatment was less successful so that a good effect could be expected for only two or three weeks. This was probably because suppression of the generation of the odor was possible only as long as the secretion was entirely stopped. On the palms and soles, a 7.5 to 10 per cent solution of formaldehyde will be cataphorized with a current of one-third to one-half milliampere per square centimeter of skin for ten minutes. For the axilla, the solution should be from 5 to 7.5 per cent, and the current from one-fourth to one-third milliampere per square centimeter of skin for five minutes. The anode should be applied to the regions to be treated and the cathode to some indifferent part of the skin. These procedures should be repeated three or four times at intervals of about two days.

Annales de Parasitologie, Paris

25: 1-96 (Jan. 1) 1937

Spirocerca Sanguinolenta (Rudolphi, 1819) in Dogs of Madrid. J. Goyanes Alvarez.—p. 1.
Research on Some New and Less Known Monogenetic Trematodes. L. Gallien.—p. 9.
*Experimental Studies in Treatment of Lambliasis. Irazabal-Luigui.—p. 29.
Contribution to Study of Opalinidae of Brasilian Batrachians. A. Carini.—p. 46.

Treatment of Lambliasis.—Irazabal-Luigui, reviewing the treatments of Giardia intestinalis, notices that almost all mineral and organic substances having an antiseptic or antiparasitic action have been tried and have failed. The disease resists every therapeutic measure because no specific remedy has as yet been discovered. In his effort to make that discovery he infected a number of white mice and began treating them with medicaments recently used and advocated by others. First of these was Jacaranda decurrens, known as tincture of carobine, allegedly used by Peckolt and Prado with excellent results. But the medicament did not seem to affect his mice in the least and it was not even toxic. The author then made experiments with pyrethrine, gentian violet and acetarsone with negative results. Resorting to naphthalene, previously used by Sorge, he administered the purified substance in increasing doses. Only one good result was obtained in a mouse with a feeble infection. Finally he continued his experiments with essence of turpentine, with which Deglos, Escomel and others had obtained good effects and which he administered in a mucilaginous solution. Of ten mice, six were decidedly freed of parasites so that at necropsy no live forms were found. Two others of the ten were notably improved and in two the drug proved itself ineffective. From the results obtained the author draws the conclusion that essence of turpentine, although no specific remedy, is capable of rendering good services in the treatment of lambliasis.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

53: 121-156 (Feb. 8) 1937

Neuro-Anemic Syndrome and Sclerocancerous Stenosis of Pylorus. J. Caroli, Mlle. M. Tissier and J. Mallarmé.—p. 122.
Hemorrhagiparous Syndrome with Agranulocytosis in Case of Chronic Diarrhea Treated with Arsenical Pentavalent. J. Caroli and J. Mallarmé.—p. 129.
Ovarian Hemogenia with Metrorrhagia and Epistaxis: Ovarian Roentgen Therapy, Cure. Loeper, R. Fau and A. Varay.—p. 134.
*Spasmodic Intestinal Complications in Pernicious Anemia: Pseudostricture, Subocclusion. P. Émile-Weil and Menetrier.—p. 145.
Diplococcus Pharyngis Flavus III: Meningitis in Parotitis. Brunel and Dérobert.—p. 148.
Heredosyphilitic Tabes with Labyrinthitis in Adults and Children. C. I. Urechia.—p. 151.

Spasmodic Intestinal Complications in Pernicious Anemia.—In the course of Biermer's anemia there are signs of gastric pseudotumors which clinically have the symptoms of pyloric constriction and roentgenologically look as though the pylorus were amputated. These disorders seem to be due to muscular spasms of dyspeptic patients and disappear with Biermer's liver treatment. Émile-Weil and Menetrier present two cases of pernicious anemia. In one there were symptoms of intestinal constriction with physical and functional disorders, and in the other signs of incomplete intestinal occlusion with painful crises lasting for about two weeks. In the first case an exploratory operation was done and no intestinal or gastric lesions were found. The patient has now been well for three years under liver treatment. In the second patient, who had a painful intestinal tumor in the right hypochondrium and who often had symptoms of occlusion, belladonna and liver extract brought about complete cessation of symptoms, which have not returned since the blood picture was improved.

Presse Médicale, Paris

45: 137-152 (Jan. 27) 1937

Inflammation of the Lips from Lipstick. A. Sézary and A. Horowitz.—p. 137.
*Pure Antivariola Viruses and Subcutaneous Vaccination. E. Gallardo and J. Sanz.—p. 139.
Purgative Action of Castor Oil. R. Hazard.—p. 142.

Antivariola Viruses.—Gallardo and Sanz cultured variola viruses in vitro and on the allantoid of the chicken embryo and reproduced the characteristics of their original species. An embryo of about ten or twelve days is deprived of its eyes and well washed with Tyrode's solution. It is placed in a large watch glass and finely chopped by means of the curved scissors used by ophthalmologists. Then from 7 to 8 cc. of Tyrode's solution is added. To each 4.25 cc. of Tyrode's solution previously distributed into small bottles they add 0.25 cc. of this embryonic suspension. For cultures in 50 cc. bottles they begin with 0.5 cc. of the virus of known purity and activity. The following is the formula: Tyrode's solution 4.25 cc., embryonic suspension 0.25 cc., initial or passage virus 0.5 cc. For larger bottles this formula is proportionately increased. Under such conditions a filtrate will furnish a pure lymph, rich in virus. Subcutaneous vaccination with cultures in vitro or on allantoid gives a positive reaction similar to that obtained with the best lymphs used on the skin. This virus gives local and general reactions which are less intense than in skin vaccinations; no reaction indicates probable immunity. Pustules are not formed.

45: 169-184 (Feb. 3) 1937

High Blood Pressure Caused by Alkali Reserve and Its Influence on Humoral and Clinical Disturbances in Renal Insufficiencies. R. Huguenin, C. Sannié and R. Truhaut.—p. 169.
Koch's Bacillus in Gastric Contents Taken from Fasting Stomach and Its Value for Diagnosis in Pulmonary Tuberculosis. P.-F. Armand-Delille and G. Kerambrun.—p. 172.
*New Procedure of Blood Withdrawal for Culturing Based on Epinephrinized Spleen Contraction in Typhoid. N. O. Irdelp, M. Guchan and C. Ugan.—p. 174.

Withdrawal of Blood for Culture in Epinephrinized Spleen Contraction.—Irdelp and his collaborators withdraw blood before and after the injection of 1 mg. of epinephrine hydrochloride. This was done in forty-nine cases of typhoid with the object of inducing a spleen contraction in an effort to drive the micro-organisms into the blood stream. In 59.5 per cent of the cases it was shown that the preceding injection of epinephrine noticeably increases the possibilities of positive results in blood culture. It is advisable to use the method in other infectious diseases as well.

Progrès Médical, Paris

Jan. 16, 1937 (No. 3) Pp. 81-120

*Treatment of Burns by Applications of Vitamin A. Chevallier, F. Carcassonne and Luccioni.—p. 89.
Obesity in the Child. S. B. Briskas.—p. 90.

Vitamin A in Treatment of Burns.—A patient with burns is not only wounded but in danger from resorption of toxins, and cellular recovery is slowed through local and general circumstances. Having occasion to study the effect of vitamin A on the scar formation of wounds, Chevallier and his associates applied it to five severe burns with the result that recuperation was rapid, pain disappeared, the temperature came back to normal and the scars remained soft and pliable. They spread a solution of vitamin A in cod liver oil on sterile gauze. Later dressings consisted of applications of a solution of 0.25:1,000 of methylene blue alternating with vitamin A. The general condition was restored and a good tendency to healing appeared after five days in three cases. In the two other grave cases admitted a few days after the accident the same results were obtained in twenty-five and twenty-eight days, respectively. It seems that vitamin A is absorbed in large quantities, turning the local into a general treatment. The authors do not mention the percentage of vitamin A used.

Schweizerische medizinische Wochenschrift, Basel

67: 133-152 (Feb. 13) 1937. Partial Index

Present Status of Postoperative Complications. P. Decker.—p. 133.
*Use of Ichthammol in Wound Treatment. E. Bosch.—p. 138.
Changes in Vertebral Column After Tetanus. O. Winterstein.—p. 139.
Treatment of Nonreducible Congenital Dislocation of Hip Joint by Means of High Diaphyseal Osteotomy. M. R. Francillon.—p. 140.
*Relaxation of Diaphragm. G. Töndury.—p. 142.
Treatment of Traumatic Central Dislocation of Hip Joint. M. Richard.—p. 144.

Ichthammol in Wound Treatment.—Bosch says that, applied to the skin, ichthammol exerts a vasoconstrictive effect and produces epithelization. After he had heard from Bleuler that ichthammol can be used in the form of a 5 per cent aqueous solution for moist applications, he decided to use this solution whenever an antiphlogistic action was required; that is, in infected wounds. In doing this he observed that the inflammation was reduced and that there was also a noticeable

decrease in the wound secretion. The latter characteristic was especially noticeable in case of infected surface wounds. The author repeatedly noticed cases in which considerable pus secretion disappeared twenty-four hours after the application of the ichthammol compress and he concluded that the aqueous solution of ichthammol in the partially moist chamber (gutta percha cover over the compress) exerts a destructive effect on the bacterial flora. In order to verify this effect, he tested the bactericidal effect of the solution in vitro and found it especially powerful against hemolytic streptococci, but also against enterococci and pyococci. The colon bacillus, however, was an exception. The author tried the solution in fresh accidental wounds, in those that had been sutured as well as in those that had not been sutured, and found it quite satisfactory. As a special advantage he stresses that the change of bandage is painless, even if the compress has dried.

Relaxation of Diaphragm.—Töndury defines relaxation of the diaphragm as a unilateral elevation, which is usually on the left side and which frequently causes disorders. He says that reports about this condition discuss the clinical and roentgenologic aspects and the differential diagnosis but that few give information about the anatomic aspects. He therefore describes the anatomic and microscopic aspects of two cases that came to necropsy. In the first case the elevated left half of the diaphragm was thin; its muscle fibers were atrophic and separated and the phrenic nerve was degenerated. The author thinks that the degeneration of the phrenic nerve resulted in the muscular atrophy. In the second case, however, the muscular atrophy was primary and the atrophy of the phrenic nerve was secondary. In the latter case a dextroconvex dorsal scoliosis and a levoconvex lumbar scoliosis of the vertebral column was a genetic factor in the relaxation of the diaphragm.

Archivio per le Scienze Mediche, Turin

63: 1-160 (Jan.) 1937

Experimental Traumatic Shock: Modifications of Respiration. C. Colombo.—p. 1.
Metabolism of Proteins in Normal Persons and in Diabetic Patients During Fasting and After Administration of Dextrose. E. Slavich and A. Torrini.—p. 45.
Dermoid Cyst of Anterior Mediastinum and Metastatic Pulmonary Cancer: Case. G. Lanza.—p. 71.
*Relation Between Intermediary Metabolism of Carbohydrates and Energy Metabolism. P. Stefanutti.—p. 123.
Distribution of Uric Acid in Plasma and Globules in Human Blood. S. Battistini and F. Quaglia.—p. 151.

Relation Between Intermediary Metabolism of Carbohydrates and Energy Metabolism.—Stefanutti studied the variations of the respiratory quotient and of glycemia in normal persons, in diabetic patients and in patients suffering from heart diseases (compensated and decompensated) after administration of dextrose by mouth, with and without simultaneous administration of a subcutaneous injection of insulin. Oral administration of dextrose induces a moderate increase of the specific dynamic action and of the respiratory quotient in normal persons and slight and irregular metabolic variations (or none at all) in diabetic patients and in persons suffering from heart diseases. In normal persons the respiratory quotient increased less by simultaneous administration of dextrose and insulin than by dextrose alone, and the specific dynamic action was abolished. In diabetic patients and in persons suffering from heart diseases the respiratory quotient and the specific dynamic action greatly increased by the associated administration of dextrose and insulin. According to the author, the specific dynamic action which follows administration of dextrose by mouth is less intense than that induced by proteins. It is due to an increase of intra-organic combustions during the process of direct oxidation of dextrose and is slight (or does not take place at all) in persons suffering from functional disturbances of gastric absorption or of the intermediary metabolism of the carbohydrates. The latter is disturbed in diabetic patients as well as in those suffering from heart diseases. The different behavior of insulin on the specific dynamic action of normal persons, diabetic patients and those suffering from heart diseases is due to the fact that in normal persons the insulin stimulates the formation of liver glycogen, whereas in the others it improves the metabolism of carbohydrates with consequent complete oxidation of the sugars.

Giornale di Clinica Medica, Parma

18: 1-76 (Jan. 20) 1937

Bromide in Animal Organism. G. Moruzzi.—p. 1.
*Points of Contact Between Tuberculosis and Rheumatic Fever. M. Pellegrini.—p. 7.
Gastric Aneurysm: Anatomic Study of Case. A. Bianchedi.—p. 23.
Etiology and Treatment of Seasickness, Airplane and Railroad Sickness and Vomiting in Pregnancy. A. Schweitzer.—p. 37.

Tuberculosis and Rheumatic Fever.—Pellegrini reports three cases of pulmonary tuberculosis in association with rheumatic fever. In the differential diagnosis the history of the patient is of value in showing previous or actual contact with tuberculous patients or occurrence of local inflammation and infection, especially in the throat, pharynx, upper respiratory tract and teeth. The different types of fever and sweats, the results of the physical examination of the thorax and of the tuberculin and the speed of sedimentation tests and the presence of certain alterations in the blood, which are different in pulmonary tuberculosis and in rheumatic fever, are also of value. The favorable results of the administration of salicylate is the most important fact in the differential diagnosis. According to the author, there is no antagonism between rheumatic fever and pulmonary tuberculosis. The coexistence of the two diseases is frequent. The symptoms of one or the other disease may prevail, they may run parallel or they may alternate. It is possible that the viruses of the two diseases have reciprocal etiopathogenic relations owing to certain phenomena of the nature of Sanarelli-Schwartzman's phenomenon.

Oto-Rino-Laringologia Italiana, Bologna

6: 495-582 (Dec.) 1936

Osteitis of Petrous Bone: Clinical and Critical Study. P. Caliceti.—p. 495.
Fine Vascularization of Human Larynx. P. Carco.—p. 506.
Fronto-Ethmoidal Mucocele: Clinical, Roentgen and Surgical Study of Cases. G. Zanni.—p. 522.
Spontaneous Elimination of Thyroid Cartilages from Typhoid Phlegmonous Chondroperichondritis: Case. U. Bombelli.—p. 536.
Recurring Abscess of Cerebellum: Case. E. Giuffrida.—p. 546.
*Periarterial Sympathectomy and Roentgen Irradiations in Treatment of Tuberculous Laryngitis. E. Rubaltelli.—p. 558.
Relation Between Obstruction of Nose and Development of Paranasal Sinuses. S. Barbera.—p. 563.

Treatment of Tuberculous Laryngitis.—Rubaltelli reviews the literature and states that the results obtained with either periarterial sympathectomy or roentgen treatment in tuberculous laryngitis are identical. Both treatments control mechanical painful dysphagia and produce reflex intralaryngeal vasodilatation. The results reported in the literature concerning the effects of either treatment on infiltration or ulceration of the laryngeal mucosa are conflicting. The roentgen treatment is preferable to sympathectomy. It can be administered in all cases, regardless of the local condition of the disease and of the general condition of the patient. If the roentgen treatment is given in the precise dose and with the proper technic, accidents and complications do not follow. It is advisable to avoid, whenever possible, bleeding, prolonged or complicated operations in tuberculous patients. The roentgen treatment can be given as an ambulatory treatment and be repeated at certain intervals. The benefits of repeated roentgen therapy are more lasting than those obtained from sympathectomy.

Pediatria, Naples

45: 1-96 (Jan. 1) 1937

Reciprocal Action of Diphtheria Bacilli and Human Leukocytes With or Without Antitoxin: Experiments in Vitro. P. Ritossa.—p. 1.
*Total Acidity and Lactic Acid in Blood Serum of Infants. C. Cammarella.—p. 15.
Typhoid in Children: Clinical and Bacteriologic Study. A. Naccari.—p. 33.
Value of Provoked Anisocoria in Diagnosis of Otitis Media in Children. S. Jannuzzi.—p. 39.
*Grave Syndrome of Myeloradicular Neuritis in Course of Atabrine Therapy: Case. P. Valentini.—p. 51.
Duodenal Ulcer in Child: Case. F. Menna.—p. 60.

Total Acidity and Lactic Acid in Blood Serum of Infants.—Cammarella determined the relation between the total amount of organic acids and lactic acid in the blood serum of infants in normal and pathologic conditions, using the Csapó and Mendel-Goldscheider methods. The figures obtained for organic acids varied between 9.1 and 13.8 of a tenth normal

solution of acids per hundred cubic centimeters of blood serum of normal infants. The amount of lactic acid of normal infants varied between 20.5 and 50 mg. per hundred cubic centimeters, depending on the psychomotor activity of the infant at the time of blood withdrawal. In general, the figures for the total organic acids, lactic acid and other organic acids are the same in normal infants, children and adults. In pathologic cases the behavior of lactic acid does not parallel that of total organic acids. In cases of laryngospasm the figures for lactic acid are high, whereas those for the total organic acids are normal (diminution of the remaining organic acids in the blood). In cases of bronchopneumonia and of toxicosis the figures for lactic acid are high or normal and those for the total organic acids are high. The lack of parallelism between the amount of total organic acids and lactic acid in the blood serum of infants in pathologic conditions shows that the metabolism of carbohydrates is not necessarily involved in the disturbances of the intermediary metabolism. The involvement of the metabolism of the carbohydrates in the pathologic process depends on the intensity of the hepatic dysfunction induced by the pathologic process. The increased total organic acidity is due to increased production of organic acids and decreased renal elimination with consequent retention and accumulation of the acids in the blood.

Myeloradicular Neuritis in Course of Treatment with Atabrine.—Valentini points out the toxicity of atabrine (an amino acridine derivative) in the treatment of malaria in children and advises that small doses be used. A case of acute cerebrospinal polyneuritis in a child who was given this drug is reported in the literature (Moschini). The author reports a case of grave myeloradicular neuritis in a child, aged 5 years, who suffered from malaria and was given a daily dose of 0.03 Gm. for five consecutive days. The patient developed a syndrome of grave flaccid paralysis of the muscles of the trunk and of the extremities and disturbances of respiration and of the liver and vomiting. The immediate treatment consisted of hypodermoclysis, stimulants and tonics, as well as belladonna for controlling the vomiting. Later strychnine, epinephrine, iron and arsenic were given, diathermy was applied, and physical and respiratory exercises were performed by the patient. The grave symptoms ameliorated but those produced by disturbances of the nervous system have remained stationary for eighty days.

Rassegna di Terapia e Patologia Clinica, Naples

8: 641-704 (Nov.) 1936

Colloidal Lability and Obstruction Phenomenon in Urine. C. Franzolin. —p. 641.
*Revival of Male Breast. A. Visani.—p. 650.
Lipases in Blood Serum in Normal and Pathologic Conditions. L. Franzi.—p. 665.
Poisoning from Snake Poisons. L. Franzi.—p. 693.

Revival of Male Breast.—Visani reports four cases of revival of the breast in men who were suffering from different diseases. None of the patients showed alterations of the genitalia. According to the author, gynecomasty may originate in endocrine, constitutional, nervous, infectious, humoral or circulatory disturbances. The most important pathogenic factor is the presence of circulatory stases in the region of the breast. When the organic disturbance that produces gynecomasty in the given case is favorably modified, the hypertrophy of the breast regresses. The treatment should aim at controlling the organic disturbances which cause gynecomasty. Amputation of the breast is an unnecessary mutilation because gynecomasty is merely a symptom of an organic disturbance.

Deutsche Zeitschrift für Chirurgie, Berlin

248: 411-514 (Jan. 15) 1937. Partial Index

Plastic Operation on Lids and Handle-Pedicled Flap. H. von Seemen. —p. 411.
Reparative Processes in Fracture of Vertebra: Particular Attention to Traumatic Spondylosis Deformans. A. Lob.—p. 452.
Treatment of Benign Gastric Tumors. V. Struppler.—p. 467.
*Control of Bleeding with Autogenous Tissue. Heilingbrunner and Schörcher.—p. 475.

Control of Bleeding.—According to Heilingbrunner and Schörcher, cessation of bleeding is a complicated physiologic process. Cessation of bleeding and blood coagulation are two independent processes. Bleeding from a severed vessel comes to an end not because of the formation of a thrombus but because of a contraction of the vessel. Several factors play a part in the stoppage of bleeding. A blood clot cannot form as long as blood continues to flow; therefore slowing of the blood current in the severed vessel is the most important condition for coagulation. The contraction of the severed vessel serves this purpose. Contraction of the severed vessel leads to the agglutination of its walls, in which event formation of a thrombus is no longer necessary for the arrest of bleeding. Magnus demonstrated in man that a severed capillary in the bed of a nail contracts in its entire length and remains permanently contracted. In the case of larger vessels the initial contraction is followed by relaxation and it is at this moment that thrombus formation takes place and plays its part. Thus the formation of a blood clot is the final act in the cessation of bleeding. The authors demonstrated in their experiment that the addition of watery extract of macerated autogenous muscle or fat tissues to the human blood reduced its coagulation time by one half. They believe that this effect is due to the mechanical effect of interfering with the blood flow and to the thrombokinase released from the tissue by maceration. Peritoneal tissue, when applied to a bleeding surface, had no effect, but, when it was macerated, the effect was at once evident. Macerated thyroid tissue was not more effective than muscle or fat. The authors applied muscle or fat tissue to the abraded surface of the liver of a rabbit and observed that the bleeding was arrested in from two to three minutes, whereas the surface not so treated continued to bleed. Bleeding from an abraded skin surface of the hind leg of a rabbit was stopped in from one to one and one-half minutes by application of macerated muscle or fat tissue, whereas the portion not so treated continued to bleed for from four to five minutes. The authors likewise found this method effective in arresting bleeding in surgical procedures on the brain in dogs.

Klinische Wochenschrift, Berlin

16: 145-184 (Jan. 30) 1937. Partial Index

Raynaud's Disease and Neurosympathetic-Hormone System. P. Sunder-Plassmann and K. Müller.—p. 152.
*Myeloid Reaction in Diseases of the Blood. F. E. Schmengler and F. Krause.—p. 156.
*Diabetes Mellitus, Gallbladder and Obesity. A. Terbrüggen.—p. 161.
Contusion Pneumonia and Atelectasis. F. Fleischner.—p. 163.
*Gastric Acidity and Calcium Metabolism. W. Thiele.—p. 165.
Bronchial Peristalsis: Physiology of Expectoration. T. Gordonoff and N. Scheinfinkel.—p. 167.
Chronic Carbon Monoxide Poisoning. W. Heubner.—p. 168.

Myeloid Reaction in Diseases of the Blood.—Schmengler and Krause report three cases of panmyelophthisis and one case of aleukemic myelosis, in all of which there was toward the end a considerable flooding out of myeloid cell forms. The authors interpret these cases as the result of the blockage of the bone marrow, the cause of which is unknown, although hypersplenia might have played a part in the case of aleukemic myelosis. Later, as the result of the interruption of the blockage, a myeloid reaction followed. In two cases the interruption of the blockage was probably effected under the stimulus of the constant loss of blood, in another case under the influence of a superimposed secondary general infection and in the fourth case perhaps by the exclusion of the influence of the spleen after splenectomy. The first three cases showed only a myeloid reaction, not a leukemia. In the fourth case the aleukemic phase was followed, as in the first three, by a leukemoid one. To be sure there was the difference that in this case there was a true leukemia from the beginning and a leukenemia was simulated in the aleukemic stage of this leukemia. The possibility of the transition of true agranulocytosis and of true panmyelophthisis into acute leukemia is rejected by the authors.

Diabetes Mellitus, Gallbladder and Obesity.—Terbrüggen decided to make a statistical analysis of a necropsy material with regard to the connection existing between age, obesity and cholecystopathy and between age, obesity and diabetes mellitus. In diabetic patients of less than 50 years of age, he never noticed a combination with cholecystopathy. In diabetic patients between the ages of 30 and 50, obesity was compara-

tively frequent and in those beyond the age of 50 it was extremely frequent. The author thinks that the concurrence of diabetes with gallstones is not so frequent as to suggest a causal connection with diabetes mellitus; thus there is no reason to regard diabetes mellitus as a sequel to biliary disease. The author explains the concurrence of biliary disorders and diabetes mellitus as the result of obesity, which occurs in both conditions. He suggests that on the one hand obesity favors the development of biliary disorders, and, on the other hand, in case of a predisposition, it also leads to the manifestation of diabetes mellitus.

Gastric Acidity and Calcium Metabolism. — Thiele demonstrates that the calcium content of the blood and the acidity of the stomach run parallel; that is, the calcium content is the higher, the greater is the acidity of the stomach. The calcium values of the blood are especially low in gastric carcinoma. The intravenous administration of calcium effects an increase in the gastric acidity.

Medizinische Klinik, Berlin

33: 149-184 (Jan. 29) 1937. Partial Index

Structural Changes of Mechanical Origin in Organs Removed During Operation or Necropsy. L. Aschoff.—p. 149.
Engorged Kidney. S. Litzner.—p. 150.
Treatment of Diabetes Mellitus in Children. E. Müller.—p. 152.
Thyroid and Circulation. J. Rihl.—p. 154.
*Significance of Electrocardiographic Changes for Prognosis of Myocardial Diseases. H. May.—p. 157.
Investigations on Problem of Pellagra. F. Lucksch.—p. 159.

Electrocardiographic Changes and Prognosis of Myocardial Diseases.—May points out that, although it is comparatively simple to determine the existence of a myocardial defect from the electrocardiogram, it is difficult to estimate the condition of the cardiac muscle from a single electrocardiographic record. One electrocardiographic examination indicates only the presence of changes but not how long they have existed. In this connection the author directs attention to the electrocardiographic records of branch block in older persons who feel slight or no discomfort. However, a careful anamnesis frequently reveals that cardiac symptoms existed a long time before. It is probable that changes developed at that time but that subsequently the basic disorder was arrested and the electrocardiographic change was the only sign that remained. New myocardial lesions become manifest in rapidly changing electrocardiograms. In this connection the author mentions the rapidly (daily or even hourly) changing electrocardiographic records in myocardial lesions that are caused by changes in the coronary vessels or by diphtheritic lesions in the cardiac muscle. The most important characteristic of the new myocardial lesion is the cessation of the uniformity of the electrocardiogram. The author describes a series of electrocardiograms that were made in the course of several weeks of a woman, aged 48, who complained of fatigue, numbness in the hands and feet, occasional swelling of the feet and attacks of cardiac oppression. The electrocardiographic records made at intervals of several days revealed various changes in the cardiac conduction system. The author shows the difficulties that are encountered in the interpretation of the successive electrocardiograms, but he says that, in spite of the fact that at first there was a lack of symptoms, the constantly changing electrocardiographic records indicated an unfavorable prognosis. This was later corroborated by the development of a circulatory insufficiency.

Münchener medizinische Wochenschrift, Munich

83: 2073-2112 (Dec. 18) 1936. Partial Index

Hereditary and Constitutional Factors in Some Blood Diseases. P. Morawitz.—p. 2073.
Vitamin C in Treatment of Pneumonia. J. Gander and W. Niederberger.—p. 2074.
*Has Klein's Reaction Practical Value for Diagnosis of Cancer? Lönne.—p. 2077.
Orthopedic Treatment of Dupuytren's Contraction. G. Hohmann.—p. 2088.

Value of Klein's Reaction for Diagnosis of Cancer.—Lönne points out that the method for the diagnosis of cancer which Klein developed on the basis of the studies of Freund and Kaminer has been widely discussed recently but that only a few have doubted the value of this reaction. For this reason he feels justified in reporting the results that were obtained in his own material of ninety-eight cases. Only sixty-nine fulfilled the requirements for the test and twenty-five of this number had clinically demonstrated cancer while forty-four were free from it. Two specimens from many of these patients were submitted for testing, with the result that the reaction showed positive as well as negative results in some cases. Only one specimen each of nine patients with cancer was tested and three gave a positive reaction while six gave a negative, that is, an incorrect, result. In the forty-four patients without cancer the reactions showed a higher percentage of correctness, but, of the group of thirty-five in whom double tests were made, seven gave positive as well as negative reactions. A survey of the entire material reveals 72.5 per cent correct and 27.5 per cent incorrect reactions. The author thinks that the test can be considered of definite value only if a correctness of at least 90 per cent can be reached and therefore he rejects the general use of the reaction in its present form.

Wiener klinische Wochenschrift, Vienna

50: 147-178 (Feb. 5) 1937. Partial Index

*Peritonitis a Circulatory Problem. R. Friedrich.—p. 153.
Hepatorenal Disturbance. R. Uebelhör.—p. 155.
Case of Paralysis of Brachial Plexus in Postdiphtheric Polyneuritis. M. Reger.—p. 162.
Treatment of Bronchial Asthma with Insulin Shock. J. Wegierko.—p. 163.
Diabetes in Children. R. Wagner.—p. 165.

Peritonitis a Circulatory Problem.—Friedrich shows that the peripheral circulation should receive attention in the treatment of peritonitis. If the patient survives the circulatory crisis, he is usually out of danger. After explaining the development of the circulatory impairment, the author points out that the choice of the anesthesia is important. General anesthesia impairs the splanchnic circulation and therefore it is advisable to use local anesthesia. The author thinks that local anesthesia can be used in peritonitis more often than is generally assumed. The exteriorization of the intestine and especially the size of the surgical wound are important factors. The postoperative pain usually increases with the size of the wound, and the greater the pain the greater the impairment of the abdominal respiration, an important factor in the circulation. In discussing the measures for the improvement of the circulation, the author points out that it is a mistake to pay attention chiefly to the heart, for in the beginning it is only secondarily involved, the main problem being to draw the blood away from the splanchnic vessels. In view of this fact, it is not surprising that cardiac stimulants often fail in peritonitis. However, the prolonged withdrawal of blood from the heart is not tolerated for long and therefore it is advisable to introduce more fluid into the circulation; but, since a sudden increase in the quantity is inadvisable, the author recommends continuous drop infusion. In addition to the administration of fluid, vasotonics, particularly adrenal preparations, are helpful. The author directs attention to the influence of the intestinal peristalsis on the splanchnic vessels. He emphasizes the importance of normal respiration for the circulation in the system of the portal vein and shows that carbon dioxide is valuable in stimulating the respiratory center. Application of heat, particularly in the form of sterile fomentations directly on the skin of the abdomen, are helpful.

Polska Gazeta Lekarska, Lwów

16: 81-96 (Jan. 31) 1937

*Researches on Contents of Epinephrine in Blood in Cases of Disease of Kidneys and Relation to Arterial Hypertension and Liberation of Nitrogenous Substances. Z. Czeżowska, J. Jaworska and P. Kubikowski.—p. 81.
Modern Views on Therapy of Ulcer of Stomach and Duodenum. S. Rawicz.—p. 84.
New Surgical Sound. L. Achmatowicz.—p. 86.
Therapy of Arthritis by Vaccination of Bacteria of Tonsil Grown on Culture Medium. J. W. Jankowski and Aniela Wojciechowska.—p. 87.
Physician and Patient. A. Kuhn.—p. 88.

Epinephrine in Blood in Diseases of Kidneys.—Czeżowska and his collaborators have studied eighteen patients suffering from acute, subacute and chronic glomerulonephritis, pyonephritis, nephrosis and other forms of kidney diseases. They conclude that the content of epinephrine in the blood is increased

in cases of kidney disease with high blood pressure. There is a positive but not wholly parallel relationship between high blood pressure and the degree of hyperepinephrinemia. This observation does not concern patients with general anatomic changes of the organs. There is a relation between the decrease of nonalbuminous nitrogenous substances in the system and increased liberation of epinephrine and arterial hypertension. This connection is made evident through the amount of nitrogenous substances liberated according to whether the disease gets worse or the condition of the kidney improves. The increase of epinephrine in the circulation is not the only or the most important cause of hypertension in diseases of the kidney; hypertension may result from more complicated mechanisms.

Novyy Khirurgicheskiy Arkhiv, Dnepropetrovsk

37: 1-152 (No. 145) 1937. Partial Index

Operative Treatment of Hallux Valgus. D. E. Shklovskiy.—p. 17.
Pathogenesis and Treatment of Cardiospasm. V. V. Krestovskiy.—p. 31.
Late Results of Resection for Chronic Gastroduodenal Ulceration. I. I. Rybak.—p. 47.
Lowering Mortality Rate of Perforation Peritonitis in Typhoid Patients. A. P. Tsulukidze.—p. 59.
Symptoms and Treatment of Ileus Due to Ascarides. I. A. Garber.—p. 63.
*Transfusion of Placental and Retroplacental Blood. E. Stavskaya.—p. 72.

Transfusion of Placental and Retroplacental Blood.—According to Stavskaya, the distinguishing characteristics of the placental blood are high hemoglobin content, increased morphologic elements, considerable bilirubin content, high sugar content, low cholesterol and alkali reserve. The potassium and calcium blood content amounts to from one and one-half to two and one-half times that of normal, while the albumin content of the plasma is lowered chiefly at the expense of the globulins. It contains estrogen, gonadotropic substance and an epinephrine-like substance. It is also distinguished by its rapid coagulability. The author reports the use of retroplacental blood in the obstetric-gynecologic clinic of the Mother and Child Institute in Kiev. The amount of blood obtainable from a retroplacental hematoma varies from 80 to 300 cc. Morphologic and biochemical studies of the placental blood demonstrate its similarity to that of the mother's blood. The iso-agglutinating properties are sharply defined and the blood grouping corresponds always to that of the mother's blood. The blood in vitro shows little tendency to coagulate and may be kept without preservatives for from ten to twelve days. A 4 or 6 per cent solution of sodium citrate was used as a preservative in a series of cases. This blood remained sterile for fifteen days. Placentas expelled later than four hours after the delivery of the child were rejected. Syphilis, malaria, tuberculosis, infectious disease, puerperal endometritis and marked soiling of the vagina were considered contraindications. Only identical blood groups were used. The author enumerates the following indications for transfusion of placental blood: (1) acute anemia due to hemorrhage, (2) puerperal sepsis, (3) cases in which it is desirable to increase the immunity because of anticipated puerperal complications, (4) gynecologic hemorrhages resulting from metropathies or hormone disturbances and (5) preoperative and postoperative period in weakened and exhausted patients.

Finska Läkaresällskapets Handlingar, Helsingfors

79: 1029-1108 (Dec.) 1936

Studies on Scarlet Fever: I. Result of Preparatory Dick Tests and Attempts at Immunization Against Scarlet Fever in Finland's Army. J. Wickström.—p. 1029.
Id.: II. Atypical Reaction. J. Wickström.—p. 1051.
Child Delivered by Cesarean Section with Grave Intracranial Birth Injury. T. Brander.—p. 1057.
*Weil's Disease: Case. H. Blomberg.—p. 1062.

Weil's Disease.—Blomberg says that the first certain diagnosis of Weil's disease in Finland was made in a man, aged 44. On the forty-third day of the disease, the agglutination test with Weil's spirochete was positive in a dilution of 1:40,000. The manner of infection is not certain. Twenty days before the onset of the disease the patient worked for a day at mending a water pipe in a cellar infested with rats and with a wet dirt floor. The possibility is suggested that an unbandaged scratch on his thumb may have become infected.

Ugeskrift for Læger, Copenhagen

99: 1-24 (Jan. 7) 1937

Climacterium. H. Nielsen.—p. 1.
*So-Called Surgical Scarlet Fever. E. Gottlieb.—p. 8.
How Isolated Is Greenland in Epidemiologic Regard? G. Krogh-Lund.—p. 12.

So-Called Surgical Scarlet Fever.—On the basis of the literature and his personal experiences, Gottlieb states that (1) the so-called surgical cases of scarlet fever seem to be cases of true scarlet fever due to the cause presented by the lesion, burn, operation or delivery, (2) the incubation period has usually been shorter, (3) the disturbance has been rather more marked, (4) angina has relatively often been absent and (5) the way of infection has been extrapharyngeal in most cases. Seven instances are described.

Upsala Läkareförenings Förhandlingar, Uppsala

42: 209-330 (Dec. 31) 1936

Influence of Some Narcotics on Autonomic Nervous System. B. Moræus.—p. 209.
*Influence of Dextrose on Tar Cancer in White Mice. K. A. Vannfält.—p. 245.
Effect of Hypertonic Dextrose Solution in Cases of Acute Confusion and Agitation. S. Oldberg.—p. 257.
*Must Electrocardiographic Examination Be Made with Patients in Recumbent or Erect Position? S. Åkesson.—p. 263.
Influence of Some Organic Preparations on Scorbutic Dental Changes in Guinea-Pigs. V. Kalniņš.—p. 273.
*Cancer of Prostate: Contribution to Its Clinic. F. Kolmert.—p. 285.
Treatment of Pemphigus Neonatorum. A. Normark.—p. 309.
Influence of Cobra Toxin on Tar Tumors in White Mice. K. A. Vannfält.—p. 315.

Influence of Dextrose on Tar Cancer in White Mice.—Vannfält found that in the mice given a 50 per cent solution of dextrose to drink ad libitum, while the control mice received plain water, metastases of the cancer to the regional lymph nodes was reduced about 50 per cent; the dextrose feeding seemed to lessen the malignity of the primary tumor.

Position of Patients for Electrocardiographic Examination.—Åkesson asserts that in arterial orthostatic anemia, a common disorder, changes in the electrocardiogram similar to those in myocarditis and anoxia of the heart muscle often occur not only when the patient is standing but also when he sits; to avoid differential diagnostic errors, clinical electrocardiography should therefore be carried out with the patient in the recumbent position.

Cancer of Prostate.—Of Kolmert's seventy-five patients with prostatic cancer, largely inoperable, ranging in age from 54 to 83 years, treated at the surgical clinic of the University of Uppsala from 1923 to 1935, eight were living at the end of 1935, and thirty-six of the remaining sixty-seven, or about 54 per cent, had the disease from two to three years or less; the maximum length of life after operation was three and a half years. The author says that cancer should be suspected in cases in which there is burning or pain on urination and short history of disorder without previous troubles of urination. Pain in the back or legs and hematuria are not early symptoms. The metastases are mostly osteoplastic bone metastases in the lower part of the spine, in the pelvis and in the upper part of the femur. Bone metastases also appeared in the cases developed from benign adenomas. Positive diagnosis in the early stages can rarely be made on palpatory results alone, and puncture of the prostate according to Barringer and palpation against the cystoscope according to Young should also be attempted. Twenty-three patients, nearly one third of the material, had metastases on admission; fifteen of these had had urination trouble for only half a year at the most and two had never had any. Twenty-six patients were operated on, half of them with the preoperative diagnosis of hypertrophy; four died in connection with the operation and three from embolism. Metastases or recurrence appeared in 50 per cent of those operated on. Roentgen treatment was extensively used for palliative purposes, partly in the cases in which operation could not be performed and partly in cases in which operation had been performed with recurrence or metastases, and proved superior to other symptomatic treatment.